

196

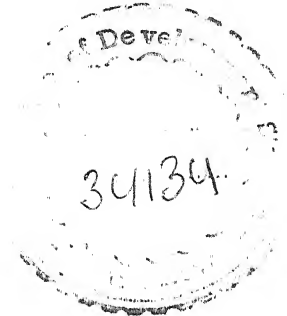
MODEL LAND USE PLAN OF KANUR NAGAR DISTRICT

(Revised)

333.7313
FAH

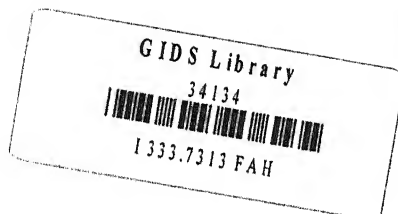
Sponsored by:

STATE LAND USE BOARD
DEPARTMENT OF PLANNING
GOVERNMENT OF UTTAR PRADESH



PREPARED BY:

Dr. FAHIMUDDIN
DR. R C TYAGI



GIRI INSTITUTE OF DEVELOPMENT STUDIES
Sector-O, Aliganj Housing Scheme
LUCKNOW-226 024

2005

I
333.7313
FAH

PREFACE

The availability of land for various uses is limited. Therefore, utilization and conservation of land resources are important for their sustainable use. Formulation of Model Land Use Plan is an important step for promoting a desirable land use. With this view, State Land Use Board, Department of Planning, Government of Uttar Pradesh, entrusted the Giri Institute of Development Studies, Lucknow to prepare Model Land Use Plan for six districts of Uttar Pradesh, namely, Lucknow, Kanpur, Bareilly, Moradabad, Meerut and Agra. The present report is the Model Land Use Plan of Agra district.

We are highly obliged to Shri S.N. Jha, IAS, the then Principal Secretary, Department of Planning, Government of Uttar Pradesh for sponsoring the task to our Institute. Mr. Anis Ansari, IAS, who has been the Principal Secretary, Department of Planning, after Shri Jha, provided us very useful guidance. We are extremely grateful to Shri Amal Kumar Verma, IAS, the present Principal Secretary, Department of Planning for his valuable guidance on the subject. We feel grateful to Shri Kunwar Fateh Bahadur, IAS, and Shri Navtej Singh, IAS, Secretary, Department of Planning for their guidance and encouragement. We are also extending our thanks to Shri A.N. Mishra, IAS, Special Secretary, Planning for his continuous support in pursuance of the study.

We feel highly obliged to Ms. Mridula Singh, Additional Director, Land Use Board for providing the opportunity to work on this important subject. Her deep and thorough understanding of the subject helped us to analyze the important issues relating to planning for land resources. The other officials of the Land Use Board, particularly, Dr. (Ms) Anandeshwari Awasthi, SRO, Shri Murali Lal, RO, Shri Arvind Kumar Verma, RO and Shri K.B. Lal provided all the necessary support during the study and hence we are highly thankful to all of them.

A Model Land Use Plan can not be prepared without the active support of concerned departments. Shri Vasudev Verma, Additional Director, Department of Agriculture, Shri A.K. Dwivedi, Chief Planner, Department of Forest, Shri Satyavir Singh Dalal, Senior Planner, Town and Country Planning Department and many officials of the Board of Revenue, Forest, Agriculture Departments, Sodic Land Reclamation Project, Directorate of Economics and Statistics have been quite helpful in the preparation of this Model Land Use Plan.

We feel very much obliged to District Magistrate and Chief Development Officer, Kanpur Nagar and other government officials of different Departments in the District for their active participation in the final presentation of the Plan.

The research team of the Institute consisting of Ajai Kumar Singh, Mohd. Kaleem, Ravi Nigam, Vinay Kumar Bisht, Zamir Ahmad, Shubhra Tandon, Sanjai Sharma and Ms. Sweta Yadav remained involved in data collection, processing and computerization. All of them did their job efficiently and deserves our appreciation. Last but not the least, Shri Manoharan K. deserves our thanks for word processing the manuscript efficiently.

Fahimuddin
R.C. Tyagi

Giri Institute of Development Studies
Sector O, Aliganj Housing Scheme
Lucknow 226 024

July 11, 2005 .

CONTENTS

	<u>Page No.</u>
Preface	i-ii
List of Tables	v
List of Graphs	vi
 CHAPTER I GENERAL PHYSICAL CHARACTERISTICS	 1-16
I.1 Introduction and Location	1-5
I.2 Rivers and Water Resources	5-8
I.3 Lakes	9
I.4 Geology	9
I.5 Seismology	9-10
I.6 Climate	10
I.6.1 Rainfall	10-11
I.6.2 Temperature	11-12
I.6.3 Humidity	12
I.6.4 Cloudiness and Winds	13
I.7 Flora and Fauna	13-15
I.8 Game Laws	15
I.9 Conclusion	15-16
 CHAPTER II POPULATION AND LAND RESOURCES	 17-29
II.1 Population Structure	17-19
II.2 Worker-wise Classification of Population	19-21
II.3 Literacy Rate	22
II.4 Projection of Population	23-24
II.5 Per Capita Availability of Land	24-25
II.6 Land Holding-wise Number of Farmers	26-28
II.7 Conclusion	28-29
 CHAPTER III TRENDS AND PROJECTIONS OF LAND USE	 30-39
III.1 Trends in Land Use Pattern in District Kanpur Nagar	30-33
III.2 Period-wise Shift in Area under Different Land Use Categories	33-35
III.3 Growth of Area under Each Land Use Category	36-37
III.4 Projection of Area under Different Land Use Classes	37-38
III.5 Conclusion	39

CHAPTER IV	IDENTIFICATION OF PLANNING AREAS	40-43
IV.1	Land Under Forest	40-41
IV.2	Barren Land	41
IV.3	Land Under Non-Agricultural Uses	41-42
IV.4	Culturable Waste	42
IV.5	Permanent Pasture Land	42
IV.6	Area Under Miscellaneous Trees	42-43
IV.7	Fallow Land	43
IV.8	Net Area Sown	43
CHAPTER V	LAND USE PLANNING OF KANPUR NAGAR DISTRICT	44-61
V.1	Status of Forest	44-45
V.2	Plan of Increasing Forest Cover	45
V.3	Methodology	45-49
V.4	Plan of Barren Land Use	50-52
V.5	Plan of Land Area Under Non-Agricultural Uses	52-54
V.6	Plan of Land Area Under Culturable Waste	55-56
V.7	Plan for the Pasture Land	56-57
V.8	Plan for the Miscellaneous Trees	57
V.9	Plan for Current Fallow	58-59
V.10	Plan for Other Fallow	59-60
V.11	Plan for Net Area Sown	60-61
CHAPTER VI	MODEL LAND USE PLAN OF KANPUR NAGAR DISTRICT	62-65
VI.1	Framework of the Plan	62-63
VI.2	Model Land Use Plan of Kanpur Nagar	63-65
	Annexure	66-67

LIST OF TABLES

<u>Table No.</u>	<u>Title</u>	<u>Page No.</u>
1.1	Frequency of Annual Rainfall in Kanpur Nagar	11
2.1	Population Characteristics of Kanpur Nagar District (1991)	18
2.2	Age-wise Population Structure of Kanpur Nagar	19
2.3	Age-wise Population Structure of U.P.	19
2.4	Worker-wise Break-up of Kanpur Nagar Population	20
2.5	Classification of Workers	21
2.6	Percentage of Literacy in Kanpur Nagar (1991)	22
2.7	Projected Population of Kanpur Nagar District and Uttar Pradesh: 1990-91 to 2009-2010	24
2.8	Per Capita Availability of Land : Reported and Net Cultivated Area	25
2.9	Trends and Projections of Number of Holdings Farmers of District Kanpur Nagar and U.P.	27
3.1	Trends in Land Use Pattern of Kanpur Nagar District	32
3.2	Period-wise Shift in Area Under Different Land Use Categories in Kanpur Nagar District 1980-81 to 2000-2001	34
3.3	Growth in Area Under Different Land Use Categories in Kanpur Nagar	37
3.4	Projected Area Under Different Land Use Classes	38
5.1	Plan for Tree Cover on the Net Area Sown in Kanpur Nagar	46
5.2	Area of Different Land Uses Which is to be used for Tree Cover in Kanpur Nagar Upto 2009-2010	48
5.3	Estimated Financial Requirement for the Proposed Area in Tree Cover of Kanpur Nagar from 2001-2002 to 2009-2010	49
5.4	Proposed Plan of Barren Land Use in Kanpur Nagar	51
5.5	Proposed Plan for Increasing in the Area of Non-Agricultural Uses in Kanpur Nagar District	54
5.6	Proposed Plan for the Use of Culturable Waste in Kanpur Nagar District	56
5.7	Proposed Plan for the Use of Current Fallow in Kanpur Nagar District	59
5.8	Proposed Plan for the Use of Other Fallow in Kanpur Nagar District	60
5.9	Proposed Plan for the Net Area Sown in Kanpur Nagar District	61
6.1	Framework of Model Land Use Plan of Kanpur Nagar	63
6.2	Model Land Use Plan of Kanpur Nagar District: 2000-2001 to 2009-2010	65

LIST OF GRAPHS

	<u>Page No.</u>
Land Use Plan of Forest - Kanpur Nagar District	68
Land Use Plan of Barren Land – Kanpur Nagar District	69
Land Use Plan of Land Under Non-Agricultural Uses – Kanpur Nagar District	70
Land Use Plan of Culturable Waste – Kanpur Nagar District	71
Land Use Plan of Permanent Pasture – Kanpur Nagar District	72
Land Use Plan of Miscellaneous Trees – Kanpur Nagar District	73
Land Use Plan of Current Fallow – Kanpur Nagar District	74
Land Use Plan of Other Fallow – Kanpur Nagar District	75
Land Use Plan of Net Sown Area – Kanpur Nagar District	76

CHAPTER – I

GENERAL PHYSICAL CHARACTERISTICS

I.1 INTRODUCTION AND LOCATION

Kanpur is said to be the corruption of Kanhaiyapur or Kanhpur which was an unimportant village till its first contact with the British. According to a local tradition, the name of Kanhpur Kohna owes its origin to Hindu Singh, Raja of Sachendi, who came here about 1750, to bathe in the holy river, the Ganga and established village, which he (possibly) named Kanhpur, the name becoming changed Kanpur in the course of time. According to the Central Statistical Organisation, the district had an area of 6,121 Sq. Km. on July 1, 1971 and occupied the 16th position in the respected of area in the State of Uttar Pradesh. The district of Kanpur occupies the north-western part of the Allahabad division and belongs to the tract known as the lower doab (which comprises the eastern extremity of the strip of country laying between the Ganga and the Yamuna rivers). In shape, it is an irregular quadrilateral and lies between the parallels of 25°26' and 26°58' north latitude and 79°31' and 80°34' east longitude. To the north-east, beyond the Ganga, the deep stream of which forms the boundary of the district, lie the districts of Hardoi and Unnao, while to the south across the Yamuna, are the districts of Hamirpur and Jalaun. On the south-east the boundary marches with that of Bindki (a tahsil of Fatehpur) and to the west and north- west are the Auraiya and Bidhuna tahsils (of district Etawah) and that of Kannauj of district Farrukhabad. The entire district Kanpur is surrounded by seven districts of U.P. namely district Etawah, district Farrukhabad. district Hardoi, district Unnao; district Fatehpur, district Hamirpur and district Jalaun.

In 1801, the district of Kanpur comprised the parganas of Jajmau, Bithur, Sheorajpur, Bilhaur, Rasulabad, Derapur, sikandra, Bhognipur, Akbarpur, Ghatampur, Sarh and Salempur as well as Auraiya and Kannauj which, in 1836, were transferred to district Etawah and Farrukhabad respectively and Kora amauli which, in 1826, was made part of the new district of Fatehpur. In 1805 the Taluqa of Bhadek from Hamirpur was added but was given to Kalpi in 1826, while in 1817 Tirwa and Thathia, then belonging to district Etawah, were united with Kanpur, though they were assigned in 1836, to the district of Farrukhabad. The changes were made for purposes of administrative convenience. The pargana of Bithur was abolished in 1860 being divided between Sheorajpur and Jajmau. Sikandra was amalgamated with Derapur in 1861, the latter having received in 1808. Mangalpur which was a taluqa rather than a pargana, the same being the case with Sachendi. Naswanpur and Majhawan which were absorbed in Jajmau in 1807. Other minor sub-divisions of similar character were Deoha, a part of Bilhaur, Malgasa, included in Rasulabad; sheoli and Sakhrej, forming portions of Sheorajpur; Bilaspur, which was merged in Sikandra; Musanagar, in pargana Bhognipur and Akbarpur Birbal in Ghatampur. Near about the same time, Sarh was united with Salempur making a total of 11 parganas, each constituting tahsil in itself. The number of tahsils was reduced to nine by the abolition of Bithur and Sikandra. No further change was made till April 1894, when Resulabad tahsil was abolished the area being divided between Bilhaur and Derapur, some villages of the latter, including most of the old sikandra pargana, being assigned to Bhognipur. In November, 1911, a redistribution of territory took place when the tahsils of Sheorajpur and Narwal were abolished. The district then being reduced to six tahsils.

The district had six sub divisions – Bilhaur, Derapur, Bhognipur, Akbarpur, Kanpur and Ghatampur each having a tahsil of the same name. Tahsil Bilhaur is the northern

most tahsil of the district and comprises a large tract of somewhat irregular shape. On the east and north-east the Ganga forms the boundary which separates the tahsil from the Hardoi and Unnao districts. To the north and north-west lies the district of Farrukhabad. Bilhaur is bonded by tahsil Derapur on the west and the Akbarpur and Kanpur tahsils on the south. According to the census of 1971, it had 469 villages and covered an area of 1,049 Sq. km with a population of 3,04,084 (females 1,88,819).

Tahsil Ghatampur is the southern-most sub-division of the district. On the south-east it is bounded by district Fatehpur and on the south and west by the Yamuna, which separates it from the Hamirpur district. To the north-west lies the Bhognipur tahsil and to the north the Akbarpur and Kanpur tahsils. According to the census of 1971 it had 322 villages and covered an area of 1,103.9 Sq.Km. comprising a population of 3, 11,562 (females 1, 44,652).

The Kanpur tahsil lies in the east of the district. It is bounded on east and north-east by district Unnao, the Ganga demarcating the boundary between the two districts. On its north-west is tahsil Bilhaur, on the west tahsil Akbarpur and on the south tahsil Ghatampur and district Fatehpur. According to the census of 1971, it had 286 villages and 6 towns covering an area of 1,048.7 sq.km. with a population of 15,25,835 (female 6, 66,492).

The Derapur tehsil lies in the west of the district and adjoins the Etawah district. It is bounded on the north by the Farrukhabad district, on the north-east and east by the Belhaur and Akbarpur tehsils respectively, on the south by Bhognipur tehsil and on the west and north-west by the Etawah district. According to the Census of 1971, it had 347 villages, covering an area of 1,072.5 Sq.km. with a population of 3,05,428 (females 1,59,352).

The Akbarpur tahsil occupies a central place in the district. It is bounded on the west by the Derapur tahsil, on the north by the Bilhaur tahsil, on the east by the Kanpur tahsil and on the south by the Bhognipur and Ghatampur tahsils. According to the census of 1971, it had 298 villages and covered an area of 955.7 sq.km. with a population of 2, 78,161 (females 1, 28,313).

The Bhognipur tahsil occupies the south-western portion of the district. It is bounded throughout on the west and south by the Yamuna, which separates it from the district of Jalaun. On the north-west it marches for few kilometers with the Etawah district. On its north lies the Derapur and Akbarpur tahsils and on the east of the Ghatampur tahsil. According to the census of 1971 it had 341 villages and a town and covered an area of 981.4 sq.km. with a population of 2, 71,162 (females 1, 25,110).

As already mentioned the name Kanpur is a transformed version of its original name Kanhapur, given by the ruler Hindu Singh of Sachendi. The British ruler Hobson Johnson found the word difficult to pronounce and he changed it to Cawnpore. Later it came close to its name as Kanpur.

Kanpur divided into two districts namely Kanpur-Nagar and Kanpur-Dehat in year 1977. Reunited again in year 1979. Again separated in year 1981. Akbarpur (MATI) is the administrative headquarters of Kanpur Dehat, which is 45 kms. from Kanpur-Nagar. Kanpur Dehat has 5 tahsils namely (1) Akbarpur (2) Derapur (3) Rasoolabad (4) Bhognipur and (5) Sikandra. It has 10 development blocks namely (1) Akbarpur (2) Maitha (3) Sarvankhera (4) Derapur (5) Jhinhak (6) Rasulabad (7) Amraudha (8) Malasa (9) Sikandra and (10) Rajpur.

The district Kanpur-Nagar has three sub-division Bilhaur, Ghatampur and Kanpur, each having a tahsil of the same name. It has 10 development blocks namely - (1) Kalyanpur, (2) Biddanu, (3) Sarsaul, (4) Bilhaur, (5) Kakawan, (6) Shivrajpur, (7) Chaubepur, (8) Patara, (9) Bhitargaun and (10) Ghatampur. According to Statistical Bulletin 1999, the geographical area of district Kanpur-Nagar was 3005.3 sq.km. in the year 1991. The entire district is surrounded by five districts of U.P., namely, (1) Hardoi, (2) Unnao, (3) Fatehpur, (4) Hamirpur, and (5) Kanpur Dehat. The total population of Kanpur Nagar was 32,53,572, out of which 17,76,197 were male and 14,77,375 were female. The total number of residential houses were 5,17,463 and the total number of families were 5,56,562. Upto March 31, 1999 it had 1,005 villages, covered an area of 2,685.6 sq.km. with a population 11,68,866, out of which 6,32,607 were male and 5,36,259 were female. The urban area of Kanpur-Nagar was 319.7 sq.km. with a population of 20,84,706 having 11,43,590 male and 9,41,116 female.

I.2 RIVERS AND WATER RESOURCES

The two chief rivers of the district are Ganga and the Yamuna. The Isan and the Non are the tributaries of the Ganga and Rind and Sengar are the chief tributaries of the Yamuna. The river next in importance is the Pandu. In Kanpur, Ganga enters the village of Chita-mau and flows along the north-eastern and eastern boundaries of the district for its entire length and also skirts the Bilhaur and Kanpur tahsils, those lie in district Kanpur-Nagar. It has a wide and sandy bend changing its channel almost every year as its sand-bank are formed and washed away. In the rains the Ganga is for immense breadth but during the cold weather it shrinks to much small dimensions. Along its banks there is generally a narrow strip of recent alluvium but in most cases the soil is almost pure sand. Above the sandy foreshore rises the Ganga cliff, which consists

of a high ridge running in an almost continuous line through the district. The river leaves the district at village Purwa Mir in the Kanpur tahsil.

The **Isan**, a tributary of Ganga has its origin in the south-east of Aligarh and enters the district in the extreme north, a short distance from Makanpur. Here its course lies wholly in the Belhaur, a tahsil of Kanpur-Nagar and it maintains a south-easterly direction and cuts through the high bank to join the Ganga at Mahgawan, after a winding course of 20 km. to join the Ganga at Mahgawan. The second tributary of the Ganga is **Non-Northern** (not to be confounded with the river of the same name in the south of district). The name obviously refers to the brackish nature of its water, a phenomenon which probably arises from the prevalence of the saline, which abounds in the low, swampy tract on the northern borders of the Belhaur tahsil, where the river takes its rise. This is full of large, shallow swamps, from which the overflow makes its way southwards to form the Non, though the river does not assume a definite channel till it enters Sheorajpur. At first it is an insignificant stream but after crossing the Grand Trunk Road (Sher Shah Suri Marg) it has a deep valley. It joins the Ganga in the south of Bithur.

Pandu is the third tributary of the Ganga but does not join the river till it exists from the district. The junction taking place in Fatehpur, some 5 km. beyond the Kanpur border. The Pandu rises in Farrukhabad and enters this district near the village of Naila (in tahsil Bilhaur) and then flows in a tortuous course but in a direction parallel to that of the Ganga. It traverses the tahsil Bilhaur and Kanpur of district Kanpur Nagar and after passing into Fatehpur, turns back sharply to the north-east forming the boundary of the district for several kilometers before bending eastwards again towards the Ganga.

During its course the river receives a considerable amount of drainage being fed by small tributaries such as the **Nai, Laukha, Bhoni** and **Paghaiya**.

The two tributaries of the Yamuna, the **Rind** and **Sengar** particularly form the central water parting which lies between the Pandu and the next river to the west. The first one is the Rind (or Arind, as it is sometimes called) a stream which, judging from the series of Hindu temples which exist in the lower part of its course, probably possessed a reputation for sanctity in bygone days. The Rind, like the Isan, has its source in the Aligarh district and first touches Kanpur near the village of Nav. Passing through the tahsil of Derapur and Akbarpur and Kanpur-Dehat district and tahsil of Kanpur in Kanpur-Nagar, it enters the Fatehpur district where it falls into the Yamuna. The course of the river is tortuous, its length in the district being 168 km. It has a deep bed, its banks on either side being scored by ravines beyond which lies a belt of red soil, the peculiar characteristic of this river. It has few tributaries and all of them join it on the left bank, indicating the southern slope of the country from the central water parting. The chief are the **Siyari, Chhoha** and **Supa**.

Sengar tributary of the Yamuna has its origin near Aligarh and enters the Drapur tahsil of Kanpur-Dehat, on its western border. After traversing that sub division and flowing close to the town of Drapur, it turns south-east. For some kilometers it forms the boundary between Akbarpur and Bhognipur, the tahsils of Kanpur-Dehat and then bending southwards through the latter tahsil near Mohammadpur, joins the Yamuna at Keotra, a short distance north of Musanagar. The banks of the river are steep and rugged throughout its course in this district and the extent of broken and unculturable land is much greater than is the case along the Rind. The Sengar receives several

unimportant tributaries on its left bank, the largest being the **Baria, Ratwaha** and the **Liljhi**, which drain the central part of Derapur tehsil.

Non (Southern) takes its rise in several large depressions in the low central and southern tracts of the Akbarpur tahsil and the surplus drainage finds its way southwards by several channels which unite on the Ghatampur border to form this river. The western drainage is known as the near and originates in a swamp at Tilaunchi, while the non proper is formed by the junction of two water-courses, one of which has its source at Rasulpur Gogamau and the other near Nariha, to the north of Akbarpur. Another confluence rises at Nanethu and flows south-westwards to join the non near Nandana in the north of Tahsil Ghatampur. The combined stream takes a southerly course through this tahsil till five kilometers from the Yamuna, it bends south-eastwards in the direction almost parallel to that river and eventually passes in to the Fatehpur district near Baripal, about 16 km. above its confluence with the Yamuna.

Another tributary of the Yamuna is the **Sonao**, often described as a jhil rather than a river. It flows in a broad depression that traverses the extreme west of the Bhognipur tahsil and maintains a course parallel to the Yamuna at a distance of three to five kilometres from the river, of which it probably is an abandoned channel.

The Yamuna first touches Kanpur-Dehat district in the extreme west of Bhognipur and maintains a south-easterly course. It makes many loops and bends and leaves the district in the extreme south-west of the Ghatampur tahsil. It separates this district from the Jalaun and Hamirpur districts in the south. The bed of the river is at a considerable depth below of the land to the north and in places there are many fertile stretches between the river and its high bank.

I.3 LAKES

The district has a large number of small depressions in which surface water collects to form shallow jhils. The important ones being found in the south of Bilhaur-Kanpur-Nagar, in Akbarpur, Kanpur-Dehat, in north Ghatampur and in parts of Kanpur tahsils, in Kanpur-Nagar.

I.4 GEOLOGY

The district lies in the Ganga basin which is formed of alluvium of the early quaternary to sub-recent age. No hard or consolidated rock exposures are encountered in the district. Along the Yamuna, in the southern part of the Kanpur-Dehat district, the soil is similar to that characteristic of the Bundelkhand terrain, whereas in the rest of the district the soil and unconsolidated sediments are typical of the Gangetic alluvium. The main constituents of alluvium (sand, silt and clay) occur in variable proportions in different sections. Taking into consideration subsurface data regarding strata, logs such as obtained in the vicinity of Kanpur, the lateral variation in the lithological constituents of the alluvium appears to be great. The mineral products of the district consist of saline earth from which Saltpetre and salt are derived and the limestone conglomerate known as Kankar.

I.5 SEISMOLOGY

The district is located in the region which is susceptible to slight to moderate earthquakes. Amongst the earthquakes which have affected the area during the last hundred years are the Bihar-Nepal earthquakes of January 15, 1934 and the Dharchula earthquake of 1916. The maximum intensity of the former was reported as VI on the MM scale, when some damage to buildings was reported. The occurrence of earthquakes

in this region is attributed to various geological and tectonic features, such as the great Himalayan boundary fault, the Kanpur Nagar fault and the Moradabad fault. Even though the actually felt maximum intensity at Kanpur was only VI, considering the proximity of the Kanpur Nagar fault (which give rise to a damaging earthquake) the expected intensity at Kanpur could have been slightly higher i.e. VII MM. In the seismic zoning map of India, Kanpur has been placed in Zone III, which corresponds to the Seismic intensity of VII in the MM scale.

I.6 CLIMATE

The climate of the district is characterized by a hot summer and general dryness except in the south-west monsoon season. The year may be divided into four seasons. The period from March to about the middle of June is the summer season which is followed by the south-west monsoon season which lasts till about the end of September, October and the first half of November form the post monsoon or transition period. The cold season spreads from about the middle of November to February.

I.6.1 RAINFALL

The average annual rainfall in the district is 778.9 m.m. (30.67"). The rainfall in the district varies from 642.3 m.m. (25.29") at Narwal to 884.8 m.m. (34.83") at Kanpur. About 89 per cent of the annual rainfall is received during the monsoon months (June to September), August being the rainiest month. The variation in the annual rainfall from year to year is appreciable. In the fifty-year period. 1901 to 1950, the highest annual rainfall which was 155 per cent of the normal, occurred in the year 1904. The lowest rainfall, 43 per cent of the normal, occurred in the year 1918. In this fifty year period the annual rainfall in the district was less than 80 per cent of the normal in 12 years,

none of which were consecutive. Considering the rainfall at individual stations two consecutive years of such low rainfall occurred three times at Bilhaur, Akbarpur and Ghatampur and twice at Kanpur and Bhognipur and 3 consecutive years of such low rainfall occurred once at Bilhaur. A statement regarding the frequency of the annual rainfall in the district is given below for the period 1901-50.

Table 1.1 : Frequency of Annual Rainfall in Kanpur Nagar

Range in m.m.	No. of years
0301-0400	2
0401-0500	3
0501-0600	5
0601-0700	6
0701-0800	9
0801-0900	6
0901-1000	10
1001-1100	4
1101-1200	4
1201-1300	1

On an average there are 40 rainy days i.e., days with rainfall of 2.5 m.m. or more in a year in the district. This member varies from 35 at Narwal to 45 at Kanpur.

The heaviest rainfall in 24 hours recorded at any station in the district was 508.0 m.m. at Derapur on June 18, 1882. According to statistical Bulletin 1999, the actual rainfall was recorded 458 m.m. in Kanpur-Nagar and 1168 m.m. in Kanpur-Dehat in the year 1998 as against 783 m.m. of normal rainfall.

I.6.2 TEMPERATURE

There is a meteorological observatory at Kanpur and the records of this observatory may be taken as representative of the climatic conditions prevailing in the

district in general. About the beginning of March, there is a rapid rise in temperature. May and the early part of June constitute the hottest part of the year. The mean daily maximum temperature in May is 41.3°C . (106.3°F) or above. Hot dry and dust-laden westerly winds are common in the hot season. Afternoon thundershowers which occur a few times during the summer, bring temporary relief. With the onset of the monsoon after the middle of June, the day temperature drops appreciably. Nights continue to be as warm as those during the latter part of the summer. Towards the end of the monsoon (in September and in October) there is a slight increase in the day temperature but the nights become progressively cooler. After October both day and night temperature decrease rapidly. January is generally the coldest month with the mean daily maximum temperature at 22.3°C . (72.1°F) and the mean daily minimum at 7.8°C . (46.0°F). During the cold season, in association with passing high-degree of disturbance, cold waves affect the district and the minimum temperature drops down to about the freezing point of water and frosts occur. The highest maximum temperature recorded at Kanpur was 47.2°C (117.0°F) on June 11, 1931 and May 30, 1944 in the past. The lowest minimum was 0.9°C (30.4°F) on December 27, 1961. In recent past in 1998-99 the maximum temperature of Kanpur-Dehat was found 45.4°C , while lowest was 3.0°C but the lowest temperature of Kanpur-Nagar was 0.7°C in the same year.

I.6.3 HUMIDITY

The humidity at Kanpur ranges from 22 per cent to 77 per cent depending upon the season of the year. During the monsoon season, the humidity generally exceeds 70 percent but after that it decrease. The driest part of the year is the summer season when in the afternoon the humidity is less than 30 percent.

I.6.4 CLOUDINESS AND WINDS

During the monsoon season and for brief spells of a day or two during the cold season when the district is affected by passing western disturbances, heavily clouded skies prevail. In the rest of the year skies are mostly clear or slightly clouded.

Winds are generally light with some strengthening in force during the summer and early monsoon seasons. In the non-monsoon months, winds blow mostly from direction between south-west and north-west with northerlies and north-westerlies predominating in the afternoon. From May, winds from directions between north-east and south-east begin to blow and in the south-west monsoon season they are either from directions between south-east and north-east or between south-west and north-west.

I.7 FLORA AND FAUNA

Patches of dhak jungle are found all over the district, although they are now reduced in size. In 1977 the total area of forest in the district was (Kanpur-Nagar and Kanpur-Dehat, both included) 13,593 ha. of which 7,106 ha. was under the forest department. In recent past, the forest area of the district Kanpur Nagar was 11,971 hectares in the year 1980-81 and was 1.93 per cent of the reporting area of the district. It has been observed that the forest area of the district Kanpur Nagar reduced to 4,723 hectares in the year 1985-86, due to the formation of new district Kanpur Nagar out of Kanpur district in the year 1981. In 1990-91 a marginal downfall in forest area has been observed in terms of percentage of the reporting area of the district and was 4.21 per cent. In 1995-96, the forest area of Kanpur Nagar was 1,620 hectares and was 1.55 per cent to the total reporting area of the district. Although, the reporting area of the

district increased during the period 1995-96 to 2000-2001 due to the shifting of land area in Kanpur Nagar from Kanpur Dehat, but forest area of the district reduced to 1,573 hectares from 1,620 hectares and in percentage term the forest area reduced to 0.52 per cent of the reporting area during the same period of time. The trees usually found in the forests here are the ordinary varieties common to the doab, such as the mango (*Mangnifera indica*), amaltas (*Cassia Fistula*) Bargad (*Ficus bengalensis*), Mahua (*Madhuca indica*), Neem (*Azadirachta indica*), Pipal (*Ficus religiosa*) Arjun (*Terminalia Arjuna*), Bahera (*Terminalia bellirica*), Barhal (*Artocarpus lakoocha*), bel (*Aegle marmelos*), Gular (*Ficus glomerata*) Jamun (*Syzigium cumini*), Siris (*Albizia Rebbek*), and Shisham (*Dalbergia sisso*). Different varieties of shurbs and grasses are also found in the district.

The wild animals of the district belong to the same species as are found in the adjoining districts. The wolf (*Canis lupus*) is common in the strips of forests and in the beds of nalas and rivers where there are shrubs. Wild pig (*susporcinus*) is plentiful in the ravines of the Yamuna (in Kanpur-Dehat) and the Khadir of the Ganga (in Kanpur-Nagar). Nilgai or Blue-bull (*Boselaphus tragecamelus*), Black Buck (*Antilope cervicarpa*), Indian gazella or Cinkara (*Gazella bennetti*), spotted deer (*Cerous axis*), Sambhar (*Cervus unicelor*), hyaena (*Hyaena Hyaena*), Jackal (*Canis aureus*), fox (*Vulpes bengalensis*), have (*Lepus nigrieollic ruficandatus*) and porcupins (*Hystrix indica*).

The common birds of the district are titar or grey pantridge, Kala titar or black pantridge, bater, lawa, peacock, common quail, simple, kabutar or pigeon, fakhta or dove, parkia or turtle dove, lalsir, khanjan, nil sir, seikhpar and jalmurge. Snakes are common in the district, specially in the rural areas. They are also found in rise-growing area and in ravines. The cobra, karait, rat snakes and varieties of non-poisonous snakes

as well as other reptiles found such as the gharial, girgit, goh and chipkali (lizard) are found in many parts of the district. The species of fish, which are commonly found in the district are rohu (*Labeo rohita*), Karaunch (*Labeo calbasu*), nani (*Cirrhina Mirgala*), parhan (*Wallangonia Attu*), Singhi (*Heteropneustes fossils*), tengra (*Mystus ser*), bata (*Labeo bata*), raiya (*Cirrihima Reba*) and bhakur (*Catla catla*).

I.8 GAME LAWS

Formerly the game laws applicable to the district were governed by the Wild Birds and Animal Protection (U.P. Amendment) Act, 1934. This law replaced in 1973 by the Wild Life (Protection) Act, the game laws became more stringent in order to conserve wild life and prevent the extension of certain species. The wolf, gharial and pea fowl have been declared protected species. The punishment for infringement of these laws has been made deterrent.

I.9 CONCLUSION

Kanpur divided into two districts namely Kanpur Nagar and Kanpur Dehat in the year 1977. These were reunited in the year 1979 and again finally separated in the year 1981. It is to be said that the division were made for the purposes of administrative convenience and obviously, due to the political reasons and interests. Kanpur Nagar has three tahsils and Kanpur Dehat has five tahsils. The main river of Kanpur Nagar is the Ganga. Yamuna is the main river of Kanpur Dehat. The total area of forest in Kanpur was (Kanpur Nagar and Kanpur Dehat included) 13,593 hectares. The forest area of Kanpur Nagar was 1,573 hectares in 2000-01. The trees usually found in the forests are ordinary varieties, common to doab. Along the Yamuna River, in the southern parts of

the Kanpur Dehat district, the soil is similar to that characteristic of the Bundelkhand terrain, whereas in district Kanpur Nagar, the soil and unconsolidated sediments are typical of Gangetic alluvium (Sand, Silt and Clay).

The climate of the district is characterized by a hot summer and general dryness except in the south-west monsoon season. There is a rapid rise in temperature in the beginning of the March. May and June constitute the hottest part of the year. Hot dry and dust-laden westerly winds are common in the hot season. With the beginning of the monsoon after the middle of June the day temperature drops appreciably. January is generally the coldest month of the year for the district. The humidity at Kanpur ranges from 22 per cent to 77 per cent depending upon the season of the year. During the monsoon season and for brief spells of a day or two during the cold season when district is affected by passing Western disturbances, heavily clouded skies prevail. Winds are generally light with some strengthening in force during the summer and early monsoon seasons.

CHAPTER – II

POPULATION AND LAND RESOURCES

II.1 POPULATION STRUCTURE

According to the census of 1991, the total population of district Kanpur-Nagar was 32,53,572 and the total population of Uttar Pradesh was 13,91,12,000. Thus, 2.34 per cent of the state population living in this district. Out of total population of the district, 17,76,197 (54.59 per cent) were male and 14,77,375 (45.41 per cent) were female. This district is dominantly urban as 64.07 per cent of total population of the district living in urban area, while state urbanisation is 19.84 per cent. Urbanisation in Kanpur-Nagar is remarkably very high. This phenomenon is entirely reverse in case of rural population. Only 35.93 per cent of population residing in the rural area of the district and very unlike situation to Uttar Pradesh as 80.16 per cent population residing in the rural area (Table 2.1). This situation, where high degree of population (64.07 per cent) residing in urban area and low number of population living in rural area came up because of the division of the district Kanpur into two districts – Kanpur Nagar and Kanpur Dehat. At the time of division maximum number of villages and rural area shifted into Kanpur-Dehat, while high amount of urban area remain in Kanpur-Nagar.

The Scheduled Castes population in the district was 5,48,507, which constitute around one-sixth of the total population of the district. The population of the Scheduled Tribes in Kanpur-Nagar was 1,324 which is 0.04 per cent of the total population of the district and was almost negligible. The female population was only 41.14 per cent forms a sex-ratio of 832 as compared to 879 in entire Uttar Pradesh. The population pressure is very high in Kanpur-Nagar. According to census 1991, the density of population was

1083 per sq.km. and was more than two-folds of the state average of density (473 per sq.km.) (Table 2.1).

Table – 2.1: **Population Characteristics of District Kanpur-Nagar (1991)**

Sl. No.	Items	Kanpur Nagar	U.P.	% to U.P.
1.	Population	3253572 (100.00)	139112000 (100.00)	2.34
2.	Male	1776197 (54.59)	74037000 (53.22)	2.40
3.	Female	1477375 (45.41)	65075000 (46.78)	2.27
4.	Rural	1168866 (35.93)	111506000 (80.16)	1.05
5.	Urban	2084706 (64.07)	27606000 (19.84)	7.55
6.	SC	548507 (16.86)	29276455 (21.05)	1.87
7.	ST	1324 (0.04)	287901 (0.21)	0.46
8.	Sex Ratio*	832	879	
9.	Density**	1083	473	

* Per Thousand of male

** Per sq. km.

Source: Statistical Bulletin (1999).

35.18 per cent of the population in the district is below 15 years of age, while 58.77 per cent is in the working age group of 15 to 59 years. The maximum number of population (13.93 per cent) comes under the age group of 30 to 39 and the minimum number of population (5.58 per cent) comes under the age group of 50 to 59 (Table 2.2). Because of high rate of urbanisation of population, 20,84,706 are living in urban part of the district and 11,68,866 are living in rural part of the district. In case of state, 49.66 per cent of population comes under the age group of below 15 years and 42.81 percentage of population comes under the age group of 15 to 59 (Table 2.3). In case of U.P. 80.16 percent of population living in rural areas while only 19.84 per cent of population living in urban areas.

Table. 2.2: Age-Wise Population Structure of Kanpur-Nagar

(1991)

Age-Group	Total			Rural	Urban
	Male	Female	Total		
0-4	172646	163398	336044 (10.32)	155693	180351
05-9	205328	190268	395614(12.16)	165044	230570
10-14	222025	190729	412754(12.69)	144472	268282
15-19	209591	158818	368409(11.33)	110575	257834
20-24	167318	135475	302793(9.31)	98419	204374
25-29	141918	130157	272075(8.37)	94561	177514
30-39	242273	210674	452947(13.93)	137926	315021
40-49	193428	140055	333483(10.25)	101808	231675
50-59	108349	72982	181331(5.58)	71768	109563
60& Above	113321	84801	198122(6.09)	88600	109522
All age	1776197	1477375	3253572(100.00)	1168866	2084706

Note : Figures in Bracket are percentage to total population.

Source: Statistical Bulletin (1999)

Table 2.3: Age-wise Population Structure of U.P.

(In 000)

Age-group	Total			Rural	Urban
	Male	Female	Total		
0-4	9790	9264	19054(13.70)	15589	3465
5-9	10604	9499	20083(14.44)	16359	3724
10-14	9234	7704	16938(12.18)	13457	3481
15-19	7358	5627	12985 (9.34)	10094	2891
20-24	5822	5538	11360 (8.17)	8910	2450
25-29	5253	4997	10250 (7.37)	8079	2171
30-39	8692	8164	16856 (12.12)	13202	3654
40-49	6687	5864	12551 (9.03)	10013	2538
50-59	4661	3854	8515 (6.12)	7023	1492
60 &above	5937	4584	10521 (7.57)	8781	1740
Total	74037	65075	139112 (100.00)	111506	27606

Note : Figures in Bracket show the percentage of the total

Source: Statistical Bulletin (1999)

II.2 WORKER-WISE CLASSIFICATION OF POPULATION

The total main workers in Kanpur-Nagar are 8,87,640, which is a section of 27.28 per cent of the total population of the district. This is slightly lower (2.45 per cent) than the state average of 29.73 per cent. Although, the state average of the total marginal

workers is 2.47 per cent but in case of Kanpur-Nagar, the total marginal workers are 1,333 and contribute only 0.04 per cent of the total population of the district. Thus, the total workers in the district Kanpur-Nagar are 8,88,973 which is a section of 27.32 per cent of the total population of the district, while state average is 32.20 per cent (Table 2.4).

Table 2.4: Worker-wise Break-up of Kanpur Nagar Population

(1991)

Item	Kanpur Nagar	U.P.
Total Population	3253572 (100.00)	139112000 (100.00)
Total Main Worker	887640 (27.28)	41361000 (29.73)
Total Marginal Worker	1333 (0.04)	3438000 (2.47)
Total Worker	888973 (27.32)	44799000 (32.20)

Source: Statistical Bulletin (1999)

Further, the total main workers have been categorized into ten categories. Those are - Cultivators, Agricultural labourers, Animal Husbandry and Plantation workers, Industry and Mining, Household industry, Non-household industry, Construction, Trade and Commerce, Transport, Storage and Communication and workers involved in other services. In Kanpur-Nagar total cultivators are 2,07,404, which is 23.37 per cent of the total main workers and in less than half of the state average of 53.26 per cent. The second highest category of workers in Kanpur-Nagar, those are involved in other services, constitute 21.23 per cent of the total main workers and is more than two-folds of the state average of 9.98 per cent. Non-household industry workers are 17.99 per cent and workers those are involved in trade and commerce activities are 17.97 per cent of the total main workers, while state average is 5.34 per cent for non-household industry workers and 6.17 per cent for trade and commerce. Thus, maximum number of

workers are found in these three categories of workers in district Kanpur-Nagar. Other category of workers are agricultural labour 11.53 per cent, while state average is 18.94 per cent. Animal husbandry and plantation workers are 0.71 per cent and state average is very similar to the district average i.e. 0.72 per cent, Industry and Mining workers are 0.02 per cent, while state average is 0.08 per cent. Household industry workers are 0.63 per cent, state average for Household industry is 2.41 per cent. Workers involved in constructions work are 1.52 per cent of the total main workers, while state average is also more or less similar i.e. 1.24 per cent. Workers involved in Transport, Storage and Communication activities are 5.03 per cent of the total main workers of the district and is higher than the state average of 1.86 per cent (Table 2.5).

Table 2.5 : Classification of Worker

S.N	Category	Kanpur-Nagar	U.P.
1.	Cultivators	207404 (23.37)	22031000 (53.26)
2.	Agricultural Labours	102361 (11.53)	7833000 (18.94)
3.	Animal Husbandry & Plantation	6283 (0.71)	296000 (0.72)
4.	Industry & Mining	137 (0.02)	35000 (0.08)
5.	Household industry	5592 (0.63)	997000 (2.41)
6.	Non household industry	159687 (17.99)	2208000 (5.34)
7.	Construction	13505 (1.52)	511000 (1.24)
8.	Trade & Commerce	159539 (17.97)	2551000 (6.17)
9.	Transport Storage & Communication	44632 (5.03)	771000 (1.86)
10.	Other Services	188500 (21.23)	4128000 (9.98)
	Total Main Workers	887640 (100.00)	41361000 (100.00)

Note : Figures in bracket indicate the percentage of total main workers.

Source : Compiled from statistical Bulletin (1999)

II.3 LITERACY RATE

Literacy rates are quite satisfactory among male and female in district Kanpur Nagar as compared to the state literacy rates. The literacy rate for the total population of the district was 64.1 per cent, while for the total population of the state was 41.60 per cent. 73.1 per cent male population of the district was literate and 53.0 per cent female population of the district was literate. State literacy rates among male and female were far below than the literacy rates of the district. It was 55.73 per cent of male state population was literate and 25.31 per cent female population of the state was literate. The literacy rate of rural area of the district which was 49.6 per cent found higher as compared to state rural literacy rate which was 36.66 per cent (According to Census 1991). Similarly urban population of Agra district was having 71.8 per cent of literacy and was higher than the state urban percentage of literacy, i.e. 61.00 per cent (Table 2.6).

Table 2.6 : Percentage of Literacy in Kanpur – Nagar (1991)

Item	Kanpur-Nagar	Uttar Pradesh
Total District		
Male	73.1	55.73
Female	53.0	25.31
Total	64.1	41.60
Rural		
Male	61.7	52.05
Female	35.1	19.02
Total	49.6	36.66
Urban		
Male	79.1	69.98
Female	62.7	50.38
Total	71.8	61.00

Note: Literacy Rate of the District is concern only with the Population 7+.

Source: Statistical Bulletin (1999)

II.4 PROJECTION OF POPULATION

Kanpur-Nagar is one of the most densely populated (1083 per sq. km.) districts of Uttar Pradesh. We have (year-wise) projected the population of Kanpur-Nagar and Uttar Pradesh up to the year of 2010. For the projection of population following formula of growth rate has been used:

$$\gamma = \frac{P_t - P_o}{P_o \times n} \times 100$$

Where,

P _o	=	Base Year
P _t	=	Final Year
n	=	Number of years
γ	=	Growth Rate

Taking 1990-91 as a base year and 2000-2001 as the final year, the growth rate has been calculated. Growth rate for total population (male and female) of Kanpur-Nagar is found 2.14 per cent, whereas the growth rate for total population of U.P. is found 1.35 per cent. In Kanpur-Nagar, the growth rate for male population is found 1.68 per cent and for female population it is found 2.60 per cent. On the other hand, in Uttar Pradesh, the growth rate for male population is found 1.03 per cent and 1.66 per cent for female population. It has been observed that the population growth rate in Kanpur-Nagar is higher than that of state population growth rate. Considering above population growth rates, we have projected population for Kanpur-Nagar and U.P. State upto the year 2010. This implies an increase in population during the period 2000-2001 to 2009-2010, 18.97 per cent in Kanpur-Nagar and 11.95 per cent in Uttar Pradesh. According to

projections, the total population of district Kanpur-Nagar would be 49,22,343 and the total population of U.P. would be 18,59,01,819 in the year 2009-2010 (Table 2.7). The impact of increasing population on density of population, availability of per capita reporting area and availability of per capita net cultivated area would be adverse, while assuming that the reporting area and net cultivated area of the district and state will remain constant.

Table 2.7: Projected Population of Kanpur -Nagar and Uttar Pradesh (1990-91 to 2010)

Year	Kanpur Nagar			Uttar Pradesh		
	Male	Female	Total	Male	Female	Total
1990-91	1776197	1477375	3253572	74036957	65075330	139112287
2000-01	2213955	1923534	1437489	87466301	78586558	166052859
2001-02	2251149	1973546	4224695	88367204	79891095	168258299
2002-03	2288343	2023558	4311901	89268107	81195632	170463739
2003-04	2325537	2073570	4399107	90169010	82500169	172669179
2004-05	2362731	2123582	4486313	91069913	83804706	174874619
2005-06	2399925	2173594	4573519	91970816	85109243	177080059
2006-07	2437119	2223606	4660725	92871719	86413780	179285499
2007-08	2474313	2273618	4747931	93772622	87718317	181490939
2008-09	2511507	2323630	4835137	94673525	89022854	183696379
2009-10	2548701	2373642	4922343	95574428	90327391	185901819

II.5 PER CAPITA AVAILABILITY OF LAND

Kanpur-Nagar is one of the most densely populated districts of Uttar Pradesh. Since land is a fixed commodity and population is growing with a certain speed of growth rate, so per capita of land availability is decreasing. Along with population, we have projected per capita reporting area and per capita Net Cultivated Area of Kanpur-

Nagar and U.P. upto the year 2010. The per capita reporting area of Kanpur-Nagar was 0.033 hectare and per capita Net cultivated area was 0.18 hectare in year 1990-91. Per capita reporting area and net cultivated area increased up to 0.072 hectare and 0.047 hectare respectively in the year 2000-2001, because of merger of some geographical area and a tahsil from Kanpur Dehat to Kanpur-Nagar. According to our projections, the per capita reporting area of the district 0.072 hectare in 2000-2001 would decrease upto 0.061 hectare in 2009-2010. It has been found that the net cultivated area of Kanpur Nagar would also decrease from 0.047 hectare in 2000-2001 to 0.039 hectare in 2009-2010. The per capita reporting and net cultivated area of the district is half as compared to the per capita reporting and net cultivated area of the state. Hence, both the areas are showing diminishing trend in the state too (Table 2.8).

Table 2.8 : Per capita Availability of Land : Reported and Net cultivated Area

Year	Kanpur- Nagar				Uttar Pradesh	
	Estimated Population of Kanpur Nagar	Per Capita availability of land		Estimated Population of U.P.	Per Capita availability of Land	
		Reported area(Hect)	Net Cultivated area (Hect)		Reported area (Hect)	Net Cultivated area (Hect)
1990-91	3253572	0.033	0.018	139112287	0.175	0.119
2000-01	4137489	0.072	0.047	166052859	0.146	0.101
2001-02	4224695	0.071	0.046	168258299	0.144	0.100
2002-03	4311901	0.069	0.045	170463739	0.142	0.099
2003-04	4399107	0.068	0.044	172669179	0.140	0.098
2004-05	4486313	0.067	0.043	174878619	0.138	0.097
2005-06	4573519	0.065	0.042	177080059	0.137	0.096
2006-07	4660725	0.064	0.041	179285499	0.135	0.095
2007-08	4747931	0.063	0.040	181490939	0.133	0.095
2008-09	4835137	0.062	0.040	183696379	0.132	0.094
2009-10	4922342	0.061	0.039	185901819	0.130	0.093

II.6 LANDHOLDING WISE NUMBER OF FARMERS

To examine the different land holding farmers of district Kanpur-Nagar, and to compare them with Uttar Pradesh, we have categorized the total land holding farmers of the district and state, into three broad categories i.e. marginal holding, Small holdings and Medium and large land holdings farmers. We have also projected all these farmers having different landholdings upto the year 2009-2010. According to a stabilized fact, marginal land holding size in which land is used for the purpose of agricultural production is not economically viable as compared to small land holding size and small land holding size is not as economically viable as medium and large land holding size. In other words medium and large land holding size is much more economically viable as compared to marginal and small land holding sizes.

The marginal category of land holding farmers of district Kanpur-Nagar is showing a reducing trend. 48 thousand farmers (71.64 per cent of the total farmers) were marginal farmers in 1995-96. It has been projected and then observed that these marginal land holding farmers would decrease upto 45.06 thousand farmers (66.70 per cent of the total farmers) in the year 2009-2010. While in the state marginal farmers are increasing. The marginal farmers of land holding in Uttar Pradesh were 14819 thousand farmers (73.82 per cent of the total farmers) in the year 1995-96. These marginal farmers are going to increase up to 15374.94 thousand (75.68 per cent of the total farmers) in the year 2009-2010. The reducing trend of marginal land holding farmers in the district over the years, showing a positive sign and indicates that the uneconomical agricultural land is going to reduce in coming future. While state is showing an increase in marginal land holding farmers during the same years.

Table 2.9: Trend of Projections of Number of Land Holding Farmers of District Kanpur Nagar and Uttar Pradesh

Year	Kanpur Nagar (in thousand numbers)				U.P. (in thousand numbers)			
	Marginal	Small	Medium & large	Total	Marginal	Small	Medium & large	Total
1985-86	57 (75.00)	12 (15.79)	7 (9.21)	76 (100.00)	13782 (72.59)	2964 (15.61)	2239 (11.80)	18985 (100.00)
1990-91	59 (76.62)	11 (14.29)	7 (9.09)	77 (100.00)	14819 (73.82)	3118 (15.53)	2137 (10.65)	20074 (100.00)
1995-96	48 (71.64)	11 (16.42)	8 (11.94)	67 (100.00)	15574 (75.59)	2983 (14.48)	2046 (9.93)	20603 (100.00)
2000-01	46.95 (69.87)	11.20 (16.67)	9.05 (13.47)	67.20 (100.00)	15017.55 (74.49)	3103.25 (15.39)	2038.90 (10.12)	20159.70 (100.00)
2001-02	46.74 (69.51)	11.24 (16.72)	9.26 (13.77)	67.24 (100.00)	15057.26 (74.63)	3100.30 (15.37)	2019.28 (10.00)	20176.84 (100.00)
2002-03	46.53 (69.17)	11.28 (16.76)	9.47 (14.07)	67.28 (100.00)	15096.97 (74.76)	3097.35 (15.34)	1999.66 (9.90)	20193.58 (100.00)
2003-04	46.32 (68.80)	11.32 (16.82)	6.98 (14.38)	67.32 (100.00)	15136.68 (74.89)	3094.40 (15.31)	1980.04 (9.80)	20211.12 (100.00)
2004-05	46.11 (68.46)	11.36 (16.86)	9.89 (14.68)	67.36 (100.00)	15176.39 (75.03)	3091.45 (15.28)	1960.42 (9.69)	20228.26 (100.00)
2005-06	45.90 (68.10)	11.40 (16.92)	10.10 (14.98)	67.40 (100.00)	15216.10 (75.16)	3088.50 (15.25)	1940.80 (9.59)	20245.40 (100.00)
2006-07	45.69 (67.75)	11.44 (16.96)	10.31 (15.29)	67.44 (100.00)	15255.81 (75.29)	3085.55 (15.23)	1921.18 (9.48)	20262.54 (100.00)
2007-08	45.48 (67.40)	11.48 (17.01)	10.52 (15.59)	67.48 (101.00)	15295.52 (75.42)	3082.60 (15.20)	1901.56 (9.38)	20279.68 (100.00)
2008-09	45.27 (67.05)	11.52 (17.06)	10.73 (15.89)	67.52 (100.00)	15335.23 (75.55)	3079.65 (15.17)	1881.94 (9.27)	20296.82 (100.00)
2009-10	45.06 (66.70)	11.56 (17.11)	10.94 (16.19)	67.56 (100.00)	15374.94 (75.68)	3076.70 (15.15)	1862.32 (9.17)	20313.96 (100.00)

Note : Figures in bracket showing percentage to total.

The small land holding farmers of the district are marginally increasing. They were 11 thousand (16.42 per cent of the total farmers) in 1995-96 and according to our projections they will slightly increase upto 11.56 thousand (17.11 per cent of the total farmers) in the year 2009-10. On the other hand, small land holding farmers of the state are reducing marginally. They were 3118 thousand (15.53 per cent of the total

farmers) in 1995-96 and is likely to reduce upto 3076.70 thousand (15.15 per cent of the total farmers) in the year 2009-2010. It indicates that the category of small land holding farmers in the district will increase in coming years. This may be treated as a positive indicator for the district, because marginal land holding farmers are reducing and medium and large land holding farmers are showing an increasing trend.

It has believed that the good size of land holdings for agricultural purposes, is medium and large, on which a good number of farmers are farming and showing an increasing trend in the district. The medium and large holding farmers were 8 thousand (11.94 per cent of the total farmers) in 1995-96 and according to our projections. They will increase upto 10.94 thousand (16.19 per cent of the total farmers) in the year 2009-2010 (Table 2.9). On the other hand, medium and large holding farmers would reduce marginally in U.P. The medium and large land holding farmers were 2137 thousand (10.65 per cent of the total farmers) in 1995-96. This number will decrease upto 1862.32 thousand (9.17 per cent of total farmers) in the years 2009-2010. Since small land holding farmers, medium and large land holding farmers showing an increasing trend and marginal land holding farmers showing a reducing trend in the district, it is a positive sign for the purpose of agricultural production in the district.

II.7 CONCLUSION

According to Census 1991, the total population of Kanpur Nagar was 32,53,572 out of which 17,76,197 were males and 14,77,375 were females. The population of working age group (15 to 59 years) was 52.15 per cent in the district. 27.28 per cent of the total population of the district belongs to main workers, while total workers were 27.32 per cent of the total population. 73.1 per cent of the male population and 53.0 per

cent of female population in Kanpur Nagar were literates. The literacy among male and female of the district is higher than the literacy of the State. As far as population growth rate of the district is concerned, it has been found that the population growth rate of district Kanpur Nagar was higher than that of State population growth rate. In Kanpur Nagar district marginal land holding farmers would marginally decrease whereas medium and large land holding farmers would increase in due course of time. The per capita reported and net cultivated area of the district is low as compared to the per capita reported and net cultivated area of the State.

CHAPTER – III

TRENDS AND PROJECTIONS OF LAND USE

In the year 1980-81, Kanpur district divided in to two districts, namely Kanpur-Nagar and Kanpur-Dehat. Time to time shifting of land areas, i. e. , Tahsil and Block form one district to the other took place and was an occurrence between these two districts. This practice was continuing upto the year 1996-97. The reporting area of the district was 6,19,523 hectares (in 1980-81), 1,08,648 hectares (in 1985-86), 1,08,154 hectares (in 1990-91), 1,04,328 hectares in 1995-96 and 2,99,435 hectares in the year 2000-2001. A sharp decline in reporting area can be observed between the years 1980-81 and 1985-86. This happened due to the division of Kanpur district into two districts. From 1986 to 1996 no significant shifting of land area occurs in between these two districts. The land area of Kanpur-Nagar once again increased during the years 1995-96 and 2000-01. Due to the above reasons, a phenomenal change was found in the reporting land area and areas belong to other classifications of land during the period 1980 to 2001.

III.1 TRENDS IN LAND USE PATTERN IN DISTRICT KANPUR NAGAR

The trend of land use pattern has been observed for the period of 1980-81 to 2000-2001. The forest area of district Kanpur was 1,1971 hectares in the year 1980-81 and was 1.93 per cent of the reporting area of the district. It has been found that the forest area of district Kanpur-Nagar reduced to 4,723 hectares, in 1985-86. Due to the reduction of reporting area and formation of the new district (Kanpur-Nagar out of Kanpur district in 1981), the percentage of forest area increased to 4.34 per cent of

reporting area of the district. In the year 1990-91, it was a marginal downfall in forest area, in terms of percentage to the reporting area of the district and was 4.21 per cent. In 1995-96, the forest area of Kanpur Nagar was 1620 hectares and was 1.55 per cent to the total reporting area of the district. Although, the reporting area of the district increased during the period 1995-96 to 2000-01 due to the shifting of land area in Kanpur Nagar from Kanpur-Dehat, but the forest area of the district reduced to 1,573 hectares from 1,620 hectares and in percentage term the forest area reduced to 0.52 per cent of the reporting area, during the same period of time.

As far as barren land of the district is concerned, it was 8.87 per cent to the total reporting area of the district in the year 1980-81 and showing a reducing trend in an interval of every five years upto 2000-2001. This barren land reduced to 6.15 per cent in 1985-86, 5.55 per cent in 1990-91, 6.94 per cent in 1995-96 and again reduced to 3.83 per cent of the reporting area. The total land under non-agricultural uses is sizable because Kanpur-Nagar is an Industrial city of U.P. State. The land under non-agricultural uses was 49072 hectares in the year 1980-81 when both Kanpur-Nagar and Kanpur-Dehat districts were the one district. After the formation of district Kanpur-Nagar (in 1981), it remains 14164 hectares in the year 1995-86. In 1990-91 it was 15237 hectares, in 1995-96 it was 15532 hectares and in the year 2000-2001 it was 31159 hectares. In percentage term, land under non-agricultural uses was 7.93 per cent of the reporting area in 1980-81. This land increased in 1985-86 and reached upto 13.04 per cent of the total reporting area. In 1990-91 it reached 14.09 per cent, in 1995-96, it was 14.89 per cent and then reduced to 10.40 per cent in 2000-2001 (Table 3.1).

It has been observed that the culturable waste land is increasing in respect to total reporting area of the district, in every five years of interval. It was 3.61 per cent in

1980-81, 4.70 per cent in 1985-86, 5.33 per cent in 1990-91, 5.30 per cent in 1995-96 and 7.48 per cent in 2000-2001. Permanent pasture land was 0.72 per cent in 1980-81, 3.42 per cent in 1985-86, 2.96 per cent in 1990-91, 4.06 per cent in 1995-96 and 1.20 per cent in 2000-2001, in respect to the total reporting area of the district. The land under miscellaneous trees was 1.59 per cent to the total reporting area of the district in 1980-81 and one can observe that the land under miscellaneous trees after two decades in 2000-2001, slightly increased to 1.87 per cent of the total reporting area of the district (Table 3.1).

Table. 3.1: **Trends In Land Use Pattern In Kanpur-Nagar District**

Land use category	(Hectare)				
	1980-81	1985-86	1990-91	1995-96	2000-01
Reporting area	619523 (100.00)	108648 (100.00)	108154 (100.00)	104328 (100.00)	299435 (100.00)
Forest	11971 (1.93)	4723 (4.34)	4553 (4.21)	1620 (1.55)	1573 (0.52)
Barren Land	54966 (8.87)	6687 (6.15)	6001 (5.55)	7238 (6.94)	11481 (3.83)
Land Under Non-Agricultural uses	49072 (7.93)	14164 (13.04)	15237 (14.09)	15532 (14.89)	31159 (10.40)
Culturable waste	22384 (3.61)	5106 (4.70)	5764 (5.33)	5528 (5.30)	22397 (7.78)
Permanent Pasture	41453 (0.72)	3715 (3.42)	3201 (2.96)	4233 (4.06)	3598 (1.20)
Miscellaneous Trees	9850 (1.59)	2812 (2.59)	2179 (2.01)	1786 (1.71)	5596 (1.87)
Current Fallow	18778 (3.03)	4639 (4.27)	5859 (5.42)	4052 (3.88)	19624 (6.56)
Other Fallow	21790 (3.52)	5764 (5.31)	6191 (5.72)	7341 (7.04)	10938 (3.66)
Net area sown	426259 (68.80)	61038 (56.18)	59169 (54.71)	56998 (54.63)	193069 (64.48)

Note : Figures in Bracket Indicates the percentage to the reporting area.

Source: Statistical Bulletin.

The land under current fallow was 3.03 per cent of the reporting area in 1980-81. After a gap of five years in 1985-86, it was 4.27 per cent, in 1990-91, it was 5.42 per cent, in 1995-96, it was 3.88 per cent and all time high 6.56 per cent in 2000-2001.

Other fallow land in the district with respect to total reporting area was 3.52 per cent in 1980-81, 5.31 per cent in 1985-86, 5.72 per cent in 1990-91, 7.04 per cent in 1995-96 and was 3.66 per cent in the year 2000-01 (Table 3.1).

As far as the most important category of land, i.e. net area sown is concerned in district Kanpur Nagar, it was 68.80 per cent of the total reporting area of the district in 1980-81. While examining this area of land at five point of time, it has been found that this land was 56.18 per cent of the reporting area in 1985-86, 54.71 per cent in 1990-91, 54.63 per cent in 1995-96 and was 64.48 per cent of the reporting area in 2000-01.

III.2 PERIOD-WISE SHIFT IN AREA UNDER DIFFERENT LAND USE CATEGORIES

Period wise shift in are under different land use categories of Kanpur Nagar has been examined by us during four point of time i.e., 1980-81 to 1985-86, 1985-86 to 1990-91, 1990-91 to 1995-96 and 1995-96 to 2000-01. As already been mentioned that Kanpur Nagar district came in the existence in 1980-81 from Kanpur district. In this year reporting area reduced upto 82.46 per cent. During 1985-86 to 1990-91 this area reduced to 0.46 per cent and during 1990-91 to 1995-96 reduced upto 3.54 per cent. Because of shifting of area from Kanpur Dehat district to Kanpur Nagar district during 1995-96 and 2000-01 the reporting area of Kanpur-Nagar increased upto 87.01 per cent. Due to the shifting of area from Kanpur-Nagar to Kanpur Dehat and sometime vice-versa the changes in area of different land use categories are clearly visible (Table 3.2).

The forest area reduced to 60.55 per cent during the period 1980-81 to 1985-86 due to the shifting of land area from Kanpur-Nagar into other district. During the period 1985-86 to 1990-91, 1990-91 to 1995-96 and 1995-96 to 2000-01 the forest area reduced 3.60 per cent, 64.42 per cent and 2.90 per cent respectively, due to the shifting

of area. The barren land of Kanpur-Nagar was decreasing during the two points of time, 1980-81 to 1985-86 and 1985-86 to 1995-96 upto 87.83 per cent and 10.26 per cent but this area of barren land increased in 1990-91 to 1995-96 upto 20.61 per cent and in 1995-96 to 2000-01 upto 58.62 per cent. Land under non-agricultural uses decreased upto 71.14 per cent during the period 1980-81 to 1985-86 due to the shifting of land from Kanpur to Kanpur Dehat district. It has been observed that the land under non-agricultural uses increased during the period 1985-86 to 1990-91 upto 7.58 per cent, 1990-91 to 1995-96 upto 1.94 per cent and during 1995-96 to 2000-01 upto 100.61 percent (Table 3.2).

Table 3.2 : Period wise shift in area under different Land use Categories in district Kanpur Nagar 1980-81 to 2000-01

Sl. No.	Land Use Category	(Hect)			
		1985-86 Over 1980-81	1990-91 Over 1985-86	1995-96 Over 1990-91	2000-01 Over 1995-96
1.	Reporting area	-510875 (-82.46)	-494 (-0.46)	-3826 (-3.54)	195107 (187.01)
2.	Forest	-7248 (-60.55)	-170 (-3.60)	-2933 (-64.42)	-47 (-2.90)
3.	Barren land	-48279 (-87.83)	686 (-10.26)	1237 (20.61)	4243 (58.62)
4.	Land Under non-agricultural uses	-34908 (-71.14)	1073 (7.58)	295 (1.94)	15027 (100.61)
5.	Cultivable Waste	-17278 (-77.19)	658 (12.89)	-236 (4.09)	16869 (305.16)
6.	Permanent pasture	-37738 (-91.04)	-514 (-13.84)	1032 (32.24)	-635 (-15.00)
7.	Miscellaneous trees	-7038 (-71.45)	-633 (-22.51)	-393 (-18.04)	3810 (213.33)
8.	Current fallow	-14139 (-75.30)	1220 (26.30)	1807 (-30.84)	15572 (384.30)
9.	Other fallow	-16026 (-73.55)	427 (7.41)	1150 (18.58)	3597 (49.00)
10.	Net area sown	-365221 (-85.68)	-1869 (-3.06)	-2171 (-3.67)	136071 (238.73)

Cultivable waste land reduced 77.19 per cent during period 1980-81 to 1985-86 but it increased to 12.89 per cent during the period 1985-86 and 1990-91. This cultivable land decreased to 4.09 per cent during the period 1990-91 to 1995-96 but increased 305.16 per cent during the period 1995-96 to 2000-2001. Permanent pasture decreased remarkably during the period 1980-81 and 1985-86 (91.04 per cent) and also decreased to 13.84 per cent during the period 1985-86 to 1990-91. During 1990-91 to 1995-96 permanent pasture increased to 32.24 per cent and again decreased to 15.00 per cent during the period 1995-96 to 2000-2001. The land under miscellaneous tress showing a reducing trend at three period of time, i.e., 1980-81 to 1985-86, 1985-86 to 1990-91, 1990-91 to 1995-96, and reduced to 71.45 per cent, 22.51 per cent and 18.04 per cent respectively. But this land increased to 213.33 per cent during the period of 1995-96 and 2000-01.

The land under current fallow reduced to 75.30 per cent during the period 1980-81 to 1985-86. In 1985-86 to 1990-91 current fallow increased to 26.30 per cent and again reduced 30.84 per cent during the period 1990-91 to 1995-96. Current fallow increased to 384.30 per cent during the period 1995-96 to 2000-01. The land under other fallow of Kanpur-Nagar decreased to 73.55 per cent during 1980-81 to 1985-86 but it was increasing during three point of times, 1985-86 to 1990-91, 1990-91 to 1995-96, and 1995-96 to 2000-01 upto 7.41 per cent, 18.58 per cent and 49.00 per cent respectively. Net area sown decreased to 85.68 per cent during 1980-81 to 1985-86, 3.06 per cent during 1985-86 to 1990-91 and 3.67 per cent during the period 1990-91 to 1995-96 but the land under net area sown increased to 238.73 per cent during the period 1995-96 to 2000-2001 (Table 3.2).

III.3 GROWTH OF AREA UNDER EACH LAND CATEGORY

The growth rate in area under different land use categories for district Kanpur-Nagar has been worked out. A negative growth rate of 8.25 per cent has been found for reporting area of the district during 1980-81 to 1990-91 but positive for the period of 1990-2001 and was 6.39 per cent. The growth rates of the forest area at both the period was found negative and was 6.20 per cent and 6.55 per cent. Growth rate of the area of barren land was minus 8.91 per cent in 1980-81 to 1990-91 but growth rate for barren land in 1990-91 to 2000-01 was positive and was 9.13 per cent. The growth rate of land under non-agricultural use was negative and was 6.90 per cent of first period of time and was positive 10.45 per cent at second period of time. Growth rates of culturable waste was minus 7.43 per cent at first point and 28.86 per cent at second point of time. Growth rate of permanent pasture was negative and was 9.23 per cent for the period 1980-81 to 1990-91 and 1.24 per cent for the period 1990-91 to 2000-01. Growth rate for area of miscellaneous trees was found negative and was 7.79 per cent for the period 1980-81 to 1990-91 and 15.68 per cent for the period 1990-91 to 200-2001 and was positive. For the area of current fallow growth rate was found minus 6.89 per cent and 23.49 (positive) per cent in second period of time. The other fallow shows a growth rate of negative 7.16 per cent for the period of 1980-81 to 1990-91 and was positive 7.67 per cent for the period of 1990-91 to 200-01. Net area sown decreased during the period 1980-81 to 1990-91 with a growth rate of minus 8.61 per cent but it increased during the period 1990-91 to 2000-01 with a growth rate of 22.63 percent (Table 3.3).

We have also calculated the growth rates to examine the growth in 20 years of time, i.e, 1980-81 to 2000-01, for the area under different land use categories. During the this period of time (1980-81 to 2000-01) reporting area, forest area, area of barren

land, land under non-agricultural uses were decreasing at a rate of 2.58 per cent, 4.34 per cent, 3.96 per cent and 1.83 per cent respectively. Culturable waste was increasing with a nominal rate of 0.003 per cent, permanent pasture and land under miscellaneous trees reducing with a rate of 4.57 percent and 2.16 per cent respectively. During the period of twenty years current fallow land is increasing at the rate of 0.23 per cent. Other fallow land and net area sown is found decreasing during the period at a rate of 2.49 per cent and 2.74 per cent respectively (Table 3.3).

Table- 3.3: Growth rate in area under different land use Categories in Kanpur-district

	Land use Category	1980-81 to 1990-91	1990-91 to 2000-01	1980-81 to 2000-01
1.	Reporting area	-8.25	17.69	-2.58
2.	Forest	-6.20	-6.55	-4.34
3.	Barren Land	-8.91	9.13	-3.96
4.	Land Under Non-Agricultural	-6.90	10.45	-1.83
5.	Cultivable Waste	-7.43	28.86	0.003
6.	Permanent Pasture Fallow	-9.23	1.24	-4.57
7.	Miscellaneous	-7.79	15.68	-2.16
8.	Current Fallow	-6.89	23.49	0.23
9.	Other	-7.16	7.67	-2.49
10.	Net are sown	-8.61	22.63	-2.74

III.4 PROJECTIONS OF AREA UNDER DIFFERENT LAND USE CLASSES

Projections for the area under different land use classes were computed by us, from 2000-01 to 2009-10 considering that the reporting area, which was 299435 hectares in 2000-2001 would remain same. It has been found that the forest area, barren land, permanent pasture and land area for miscellaneous trees will remain constant up to the year 2009-10. The land under non-agricultural uses would increase from 10.41 per cent area of the total reporting area of the district Kanpur-Nagar in the

year 2000-01 upto 11.99 per cent of the total reporting area in the year 2009-2010. Culturable waste would decrease from 7.48 per cent to 6.72 per cent in the year 2009-2010. Current fallow would slightly increase from 6.55 per cent to 6.95 per cent in 2009-2010. Other fallow will decrease from 3.65 per cent in 2000-2001 to 3.50 per cent in 2009-2010. Net area sown also slightly reducing in every year since 2000-01 to 2009-2010. The net area sown was 64.45 per cent of the total reporting area of the district in 2000-2001 and according to projections it would be 63.43 per cent of the total reporting area of the district in the year 2009-2010 (Table 3.4).

Table- 3.4: Projected Area Under Different Land Use Classes

Sl. No.	Land use Categories	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
1.	Reporting (Ha.)	299435 (100.00)	299435 (100.00)	299435 (100.00)	299435 (100.00)	299435 (100.00)	299435 (100.00)	299435 (100.00)	299435 (100.00)	299435 (100.00)	299435 (100.00)
2.	Forest (Ha.)	1573 (0.53)	1573 (0.53)	1573 (0.53)	1573 (0.53)	1573 (0.53)	1573 (0.53)	1573 (0.53)	1573 (0.53)	1573 (0.53)	1573 (0.53)
3.	Barren Land (Ha.)	11481 (3.83)	11472 (3.83)	11463 (3.83)	11454 (3.83)	11445 (3.82)	11436 (3.82)	11426 (3.81)	11416 (3.81)	11406 (3.81)	11396 (3.81)
4.	Land Under Non-Agricultural use (Ha.)	31159 (10.41)	31900 (10.65)	32358 (10.80)	32772 (10.94)	33308 (11.12)	33485 (11.18)	33918 (11.33)	34478 (11.51)	35109 (11.72)	35923 (11.99)
5.	Culturable waste (Ha.)	22397 (7.48)	22038 (7.36)	21919 (7.32)	21799 (7.28)	21589 (7.21)	21410 (7.15)	21260 (7.10)	20990 (7.01)	20601 (6.68)	20122 (6.72)
6.	Permanent Pasture (Ha.)	3598 (1.20)	3598 (1.20)	3598 (1.20)	3598 (1.20)	3598 (1.20)	3598 (1.20)	3598 (1.20)	3598 (1.20)	3598 (1.20)	3598 (1.20)
7.	Miscellaneous Trees (Ha.)	5596 (1.87)	5596 (1.87)	5596 (1.87)	5596 (1.87)	5596 (1.87)	5596 (1.87)	5596 (1.87)	5596 (1.87)	5596 (1.87)	5596 (1.87)
8.	Current fallow (Ha.)	19624 (6.55)	19673 (6.57)	19733 (6.59)	19853 (6.63)	19942 (6.66)	20362 (6.80)	20481 (6.84)	20601 (6.88)	20751 (6.93)	20811 (6.95)
9.	Other fallow (Ha.)	10938 (3.65)	10869 (3.63)	10810 (3.61)	10750 (3.59)	10690 (3.57)	10630 (3.55)	10588 (3.54)	10540 (3.52)	10510 (3.51)	10480 (3.50)
10.	Net area sown (Ha.)	193069 (64.48)	192716 (64.36)	192385 (64.25)	192040 (64.12)	191694 (64.01)	191345 (63.90)	190995 (63.79)	190643 (63.66)	190291 (63.55)	189936 (63.43)

III.5 CONCLUSION

Kanpur-Nagar and Kanpur-Dehat came into existence as a separate district out of Kanpur district in the year 1980-81. During 1980-81 to 2000-01, the shifting of land area from one district to other was a practice for administrative convenience. Due to the shifting of area, a phenomenal change was found in the reporting area and areas belong to other classes of land during this period. The maximum land of Kanpur-Nagar was under net area sown in 2000-01. It was 193969 hectares (64.48 per cent of total reporting area), while land under forest area was minimum i.e. 1573 hectares (0.52 per cent of total reporting area) in the same year. The growth rate over a period of 20 years (1980-81 to 2000-01) was found negative in all classes of land except in culturable waste land (0.003 per cent) and current fallow (0.23 per cent) which was positive. Projection of different land use classes shows that the forest land, barren land, permanent pasture and land under miscellaneous trees would remain same upto the year 2009-2010. The land under non-agricultural uses and current fallow would increase and culturable waste area, other fallow land and net area sown would decrease upto the year 2009-2010.

CHAPTER IV

IDENTIFICATION OF PLANNING AREAS

Land is fixed commodity, particularly, fertile land, which is used for agricultural and plantation purposes in every district. Contemporary, requirement of fertile land is increasing because of increasing population and increasing pollution, etc. On the other side, for the development of other sectors in a district like Industry, Business and Trade, Transport, Residential colonies, Park and Play grounds, Hospitals, Education Centres, etc., land is a prime requirement. The utilization of land for various purposes hardly follows a standard pattern. It is generally governed by the human needs. It becomes difficult to achieve a balance unless land use plan is not prepared with proper identification of area which required attention. In this chapter, each of these nine classifications of land uses has been scrutinized in order to identify those uses of land, which need model planning in Kanpur Nagar district.

IV.1 LAND UNDER FOREST

The forest cover in Uttar Pradesh was drastically reduced after carving out of the State of Uttaranchal. Even before formulation of Uttaranchal, land used for forest had been far lower than the standard norm in most of the plain districts of the State. In Kanpur Nagar district, land area under forest has been observed quite lower in comparison with the standard norm of 3.0 per cent share of forest area in reporting area as recommended in the National Forest Policy. Keeping in view the progress of the State

Forest Department in increasing the forest area in different districts of the State including Kanpur Nagar district, it did not seem possible that forest area would increase to the level of 30 per cent in the reporting area of the district during coming years. However, there is need to divert land from other uses for afforestation to increase the forest cover in the district and it requires a proper planning.

IV.2 BARREN LAND

The area of barren land constitutes around 4 per cent of the reporting area in the district. Obviously, such a large area of barren land, requires proper plan to utilize it in the near future. According to the officials of Department of Agriculture, around 35 per cent of total barren land in the district is rocky (*Kankar or Usar*) and hence not usable with the given level of technology of barren land reclamation. For the reclamation and use of rest of the area of barren land, Department of Agriculture and World Bank aided Sodic Land Reclamation Project are engaged. Keeping in view their past performance, it is to be decided that how much area of the barren land can be treated for different uses.

IV.3 LAND UNDER NON-AGRICULTURAL USES

Land used for non-agricultural purposes is increasing due to urbanisation and industrialisation. It is one of the important symbols of development in the present society. In Kanpur Nagar district, around 11 per cent of the reporting area is under non-agricultural uses at present and it is likely to increase during coming years. Therefore, demand of land for non-agricultural purposes is to be met from other categories of land. It is evident from the observation that generally agricultural land has been diverted for non-agricultural uses. In this situation, rate of growth in the area of non-agricultural

uses is to be planned. It is also to be looked into the possibility of using of non-agricultural areas for other purposes.

IV.4 CULTURABLE WASTE

The area of culturable waste constitutes around 6 per cent of the reporting area in Kanpur Nagar district. In comparison with the State, its share is higher in the district. Keeping in view the constant growth in the demand of land for varying purposes, area of culturable waste can be utilised for cultivation, for increasing forest cover and for non-agricultural purposes. Thus, culturable waste land requires proper planning for its possible use during the coming years.

IV.5 PERMANENT PASTURE LAND

The area of pasture land is 1.20 per cent in the reporting area of Kanpur Nagar district. During the last years, there has been some decline in this area. Keeping in view the population of livestock in the district, further reduction in the area of pastures would become troublesome. Therefore, in the proposed Model Land Use Plan of the Kanpur Nagar district, area of pasture land would not be touched for any other uses. It will be proposed to remain this area of pasture land as same during each year upto 2009-2010 to the level of the year 2000-2001.

IV.6 AREA UNDER MISCELLANEOUS TREES

There has been considerable decline in the area under miscellaneous trees during last two decades in the Kanpur Nagar district. The continuous reduction in the area under miscellaneous trees also acted as pull factor for increasing forest area of the district. Actually the area under miscellaneous trees constituted the area of old

orchards, new orchards and scattered trees. Overall situation reflects that the cutting of trees also has adverse environmental impact. Thus, from both view points, i.e. afforestation and environment, it is proposed that upto 2009-2010, further decline in the area of miscellaneous trees would be checked and it will be maintained at the existing level.

IV.7 FALLOW LAND

The area of both type of fallow land is on higher side in the district. In particular, area under current fallow has been around 6 per cent of the reporting area in 2000-2001. The other fallow land also constituted around 4 per cent in reporting area of the district. In this proposed land use plan, a framework for the management of fallow land would be devised so that fallow land could be diverted for cultivation and other uses.

IV.8 NET AREA SOWN

The net area sown has not risen much over the years in the district despite the fact that demand of land for agriculture has increased with the growth in population. There is an urgent need that some area of barren land, culturable waste and fallow land should be diverted to net area sown. It is, therefore, required a plan to be proposed to increase the net area sown during coming ten years in the Kanpur Nagar district.

On above basis, following seven (7) categories of land uses in the district require planning for their proper utilization upto the year 2009-2010:

- (i) Planning for Forest Area.
- (ii) Planning for Barren Land.
- (iii) Planning for Culturable Waste Land.
- (iv) Planning for Current Fallow.
- (v) Planning for Other Fallow.
- (vi) Planning for Net Area Sown.
- (vii) Planning for Land Under Non-Agricultural Uses.

CHAPTER – V

LAND USE PLANNING OF KANPUR NAGAR DISTRICT

In the preceding chapter, trends in land use pattern of Kanpur Nagar district from 1980-81 to 2000-2001 has been examined. The analysis revealed that the status of different land use pattern during the period. It came out that utilization of land for various purposes was not proper and was in haphazard way. Therefore, it is required that a proper plan for the use of land for various needs, has to laid down in the nine-fold classification of land use and should be prepared a model for the district. The proposed plan should be realistic, not utopian one and could be implemented in the future. Keeping all these points in view, a model land use plan for the development of different land uses has been presented here.

V.1 STATUS OF FOREST

The forest cover in district Kanpur Nagar had been 4.21 per cent of the reporting area during 1985-86 to 1990-91. The forest area of the district showing a reducing trend since then. The area reduced to 1.55 per cent of reporting area in the year 1995-96 and again reduced and reached to 0.52 per cent of reporting area in the year 2000-2001. The forest area of the district has reduced and reached up to the alarming stage of 0.52 per cent of the reporting area in the year 2000-2001. Kanpur Nagar is an industrial city, with full of pollution, needs a sizeable amount of forest cover area, which is at present found far below than the standard norms of 30 per cent, recommended in the National Forest Policy. Though, it would be impractical to think of increasing the forest area to the level of 30 per cent during the coming ten years or so but serious

efforts are now needed to increase the forest area, keeping in view the practicability of financial and administrative implications. In case of Kanpur Nagar, one more point is to be taken note here is that the future planning of increasing forest area will not mean increasing the area reserved for forest alone but also emphasis will be put to increase tree cover rather than forest cover only. Therefore, when we say that the planning for increasing the area of forest in Kanpur Nagar district, it means that tree cover will be involved.

V.2 PLAN OF INCREASING FOREST COVER

As already been mentioned that the forest area of district Kanpur Nagar is decreasing since 1990-91 onwards, it is an urgent need to control not only the decreasing trend of forest area of the district but also require to improve the forest area and tree cover of the district. Since the concept of forest has changed to tree cover, there is no need to divert land as such, from other uses to increase tree cover. Instead of it, the land use pattern remaining the same, increase in tree cover can be planned on some land of other uses. Now the question arises that how much area of other land uses can be utilized for tree cover in successive years, which must be realistic. On the basis of discussion with the officials of the Department of Forest, and officials of Bhoomi Sudhar Nigar, Government of Uttar Pradesh, following methodology has been adopted.

V.3 METHODOLOGY

The net area shown is the most suitable land for the plantation of tree. But plantation on large scale on the sown area would be impractical. Therefore, it is to be decided that during each year, how much area of net sown could be covered with the trees. Moreover, there are different types of land owners who own land of different

sizes. In this situation, a uniform area can not be fixed for increase in tree cover. As shown in Table 5.1, net area sown of Kanpur Nagar was classified in different five categories and it is proposed to cover different proportion of area under each class from less than one hectare to 10 hectares and above. On an average, 0.50 per cent of the net area sown of Kanpur Nagar district is proposed to be covered with trees each year from 2000-2001 to 2009-2010.

Table 5.1 : Plan for Tree Cover on the Net Area Sown in Kanpur Nagar District

Land Size Group	Percentage of Area
Less than One Ha.	0.09
1 – 2 Ha.	0.43
2 – 4 Ha.	0.64
4 – 10 Ha.	0.85
10 Ha. and above	1.06
Total	0.50

The other land use category is the barren land on which plantation would be taken up to increase tree cover of the district. The Directorate of Agriculture and Bhoomi Sudhar Nigam are involved in the reclamation of Barren land that included the sodic land as well. After having a discussion with the officials of both the departments, it is revealed that in the category of barren land, about 35 per cent land is completely useless and can not be put to any other use. Thus, 35 per cent of land falling in this category is to be left and remaining 65 per cent of the land is to be covered for different uses. It has been decided to undertake plantation on 2 per cent of barren land each year from 2002-2002 to 2009-2010. Land under non-agricultural uses has emerged as of the important use of land, because of urbanisation and industrialization. In Kanpur Nagar around 10.40 per cent of the reporting area has been put to various non-

agricultural uses. As per estimation of the Department of Forest, it could be practical to bring 0.50 per cent of the area of non-agricultural uses under tree cover in every year.

Culturable waste is such type of land which though not under cultivation but in worth of cultivation. The Department of Forest planning to use 6.25 per cent of total culturable waste each year for increasing tree cover. This is found to be on higher side as per our methodology. In case of Kanpur Nagar it is planned to use 1.50 per cent of culturable waste for plantation to increase the tree cover.

The area under pasture land is lowest among all other land uses and showing a constant figure over the years in a fluctuating manner. So keeping in mind, the livestock population of the district, it would not be feasible to extend tree cover on the permanent pasture land.

The area under miscellaneous trees and groves is also found constant since 1980-1981 to 2000-2001 in a fluctuating manner. It is a process that has been set in and can not be stopped unless some strict measures are not adopted. But in the given situation, remedial measures are not likely to come. Therefore, area of miscellaneous trees is likely to continue declining during the years to come. In this situation, whatever area of miscellaneous trees could be left, that will be treated as part of the forest area.

The fallow land is comprised of two types. One is the current fallow which is left uncultivated during the current agricultural season. Second is old fallow or other fallow, which remains uncultivated from more than one year. While planning for increasing tree cover on such type of land, Department of Forest, hopes to utilize much higher percentage of both types of fallow land each year. According to our methodology it is

proposed to increase tree cover in Kanpur Nagar by bringing 0.50 per cent from current fallow and 1.0 per cent from other fallow land each year.

On the basis of methodology outlined above, the area of different uses of land on which tree cover has been proposed to be extended is shown in Table 5.2.

Table 5.2: Area of Different Land Uses which is to be used for Tree Cover in Kanpur Nagar District Upto 2009-2010

(in Hect.)

Year	Net Sown Area	Barren Land	Land under Non-Agricultural Uses	Culturable Waste	Current Fallow	Other Fallow	Existing Forest Area	Total Area Proposed for Tree Cover (2 to 8)	Percentage of Reporting Area
1	2	3	4	5	6	7	8	9	10
2000-01	--	--	--	--	--	--	1573	--	0.53
2001-02	965	149	156	336	98	109	1573	3386	1.13
2002-03	974	143	158	308	92	103	3386	5164	1.72
2003-04	981	138	160	282	87	96	5164	6908	2.30
2004-05	987	132	163	258	82	90	6908	8620	2.88
2005-06	993	127	165	236	77	84	8620	10302	3.44
2006-07	997	122	168	217	73	79	10302	11958	3.99
2007-08	1000	117	170	199	69	74	11958	13587	4.54
2008-09	1002	112	173	182	65	69	13587	15190	5.07
2009-10	1004	108	175	167	61	65	15190	16770	5.60

On the basis of above estimates there would be an addition in forest cover by 0.60 per cent of the existing forest area in the year 2002-2003. But as the time proceed percentage of additional tree cover area to the existing forest area would nominally decline. However, the percentage of forest area of our proposed plan of forest development will increase the share of forest area in total reporting area of the district by 1.13 per cent in the year 2001-2002 as shown in Table 5.2. By the end of 2009-2010

percentage of forest area in reporting area will increase and will reach to 5.60 per cent of the reporting area of the district. Therefore, during the period 2001-2002 to 2009-2010, share of forest area in reporting area of the district would be around 5.60 per cent. Any planning to increase the forest area beyond what has been planned here in case of district Kanpur district would not be practically possible as substantial financial implications are involved. An estimation of funds that would be required to increase the proposed forest cover with the exemption that the proposed increase in forest cover would be achieved through people's participation not through involving departmental forestation. The non-departmental expenditure will cost only the supply of seedlings @ 1100 seedlings per hectare, costing Rs.5.00 per seedling. The seedlings may also be given privately and the farmers may be subsidized in the purchase of these seedlings. If it is assumed that 1100 seedlings per hectare at the rate of Rs.5.00 per seedling would be needed, the estimated financial requirement would be around Rs.87 lakh to one crore per year as becomes evident from the following estimations (Table 5.3).

Table 5.3 : **Estimated Financial Requirement for the Proposed Area in Tree Cover of Kanpur Nagar District from 2001-02 to 2009-2010**

Year	Total Area (Ha.)	Total Seedling Required (No.)	Rate of Seedlings (Rs.)	Total Cost (Rs.)
2001-02	1813	1994300	5.00	9971500
2002-03	1778	1955800	5.00	9779000
2003-04	1744	1918400	5.00	9592000
2004-05	1712	1886500	5.00	9432500
2005-06	1682	1850200	5.00	9251000
2006-07	1656	1821600	5.00	9108000
2007-08	1629	1791900	5.00	8959500
2008-09	1603	1763300	5.00	8816500
2009-10	1580	1738000	5.00	8690000

BARREN LAND

In the Government publications, relating to land use pattern, area under barren land depicted in two forms. One is the land area under barren land which can be understood as the part of land which can not be utilized either for cultivation or to grow any type of vegetation. The other form of the land area which is called the area under usar and non-cultivable land. In this category of barren land, there seems to be its two parts. One is the usar land which can be reclaimed and put under cultivation and other is the land which absolutely worthless for any use. This is the lacuna in the data published by the Department of Agriculture, which did not clearly bifurcated the area under usar and the area worthless for any use. During the course of discussion with officials of the Directorate of Agriculture admitted the serious drawbacks in collecting and publishing the land use data. They also had the view that of the size land area shown as barren, around 35 per cent is unfit for any use. Thus, on the basis of the discussion with the officials of the Agriculture Department, following plan of barren land utilization of Kanpur Nagar has been drawn.

V.4 PLAN OF BARREN LAND USE

In the previous section, 2 per cent of barren land during each year from 2001-2002 to 2009-2010 has been earmarked for afforestation to increase tree cover in the district. There, from the barren land of each year, a part of the forestation would be subtracted. The result would be the area of barren land that would be workable for the planning. As mentioned above, officials of Agriculture Department hold the view that 35 per cent to 40 per cent of the existing barren land is not worth for any use. Following their notion, 35 per cent of the area of the existing barren land would be subtracted

from the total barren land area which can not be reclaimed. Thus, 65 per cent of the barren land during each year becomes available for reclamation. However, the entire 65 per cent area of the reclaimable barren land can not treat at one point of time. In the State, Department of Agriculture and Bhumi Sudhar Nigam have been engaged in the treatment of barren land by merely 1.16 per cent per year during the period of 1995-96 to 2000-2001. Since financial implications of barren land reclamation is substantial and given the financial allotments to these departments by the Government in the past, it is assumed that both the departments would be able to treat around 2 per cent of the barren land per year during the period of 2001-2002. In the same way, it is assumed here that the reclaimable area of barren land in Kanpur Nagar would decline by 2 per cent per year during the period of 2001-2002 to 2009-2010. On an average 125.22 hectares area of barren land would be reclaimed per year in Kanpur Nagar during 2001-2002 to 2009-2010. In Table 5.4 plan of barren land use in case of Kanpur Nagar for the period 2001-2002 to 2009-2010 has been prepared and depicted.

Table 5.4 : **Proposed Plan of Barren Land Use in Kanpur Nagar District**

(in Ha.)

Year	Barren Land	Rocky and Ravenous (35% of Barren Land)	Reclaimable Barren Land	Barren Land Diverted for Tree Cover	Barren Land Available for Reclamation	Proposed for Reclamation	Remaining Barren Land	Net Barren Land Available (3+8)	Percentage of Barren Land in Reporting Area
1	2	3	4	5	6	7	8	9	10
2000-01	11481	--	--	--	--	--	--	--	3.83
2001-02		4018	7463	149	7314	146	7168	11186	3.74
2002-03		4018	7168	143	7025	141	6884	10902	3.64
2003-04		4018	6884	138	6746	135	6611	10629	3.55
2004-05		4018	6611	132	6479	130	6349	10367	3.46
2005-06		4018	6349	127	6222	124	6098	10116	3.38
2006-07		4018	6098	122	5976	120	5856	9874	3.30
2007-08		4018	5856	117	5739	115	5624	9642	3.22
2008-09		4018	5624	112	5512	110	5402	9420	3.15
2009-10		4018	5402	108	5294	106	5188	9206	3.07

It is evident from the above Table 5.4 that the area of barren land was 11481 hectares in the year 2000-2001. Out of this area, 35 per cent has been assumed to be rocky and ravinous land, thus not possible to put to use for any kind. Such area comes to 4018 hectares in the year 2001-2002. The net reclaimable barren land in the year 2001-2002 was 7463 hectares, out of which 2 per cent (149 hectares) would be available for reclamation in the same year in the district. As proposed in our methodology, 2 per cent of this available barren land would be reclaimed every year upto 2009-2010. The reclaimed barren land would be 146 hectares in the year 2001-2002, 141 hectares in 2002-2003, 135 hectares in 2003-2004, 130 hectares in 2004-2005, 124 hectares in 2005-2006, 120 hectares in 2006-2007, 115 hectares in 2007-2008, 110 hectares in 2008-2009 and 106 hectares in 2009-2010. The barren land available for reclamation, i.e. 7314 hectares in the year 2001-2002 would reduce to 5188 hectares in the year 2009-2010. If required, efforts would be put to reclaim the barren land of the district, the overall reclaimed barren land would be 29.07 per cent of the available barren land for reclamation during the period 2001-2002 to 2009-2010.

V.5 PLAN OF LAND AREA UNDER NON-AGRICULTURAL USES

Land area used for various non-agricultural purposes constituted 10.41 per cent (31,159 hectares) of the reporting area by 2000-2001 in the district. If the growth in the area under non-agricultural uses is examined, it showed a negative growth of around 7 per cent during the year 1980-81 to 1990-91. During the period of 1990-1991 to 2000-2001, area under non-agricultural uses increased by more than 10 per cent. Thus, on the basis of land use data published by the Directorate of Agriculture, it can be inferred that the area under non-agricultural uses does not indicate any definite trend rather its

share in reporting area of the district hovered around 10 per cent since long period of time. We had also gone through the Master Plan of Kanpur Nagar, 2001, prepared by the Town and Country Planning, Department of Uttar Pradesh, land used for non-agricultural purposes in urban areas of the Kanpur Nagar district experienced a growth of 32.3 per cent during 1987-2002. On this basis, land put to non-agricultural purposes in urban areas of the district had an annual growth of 2.09 per cent per annum during the last 15 years. It is the fact that constituents of the land used for various non-agricultural purposes in rural and urban areas are the housing, commercial, offices, industries, schools and colleges, hospitals, recreations/parks/play-grounds, parks utility services, road transport, river and open spaces. Taking into account the growth of population in the district and past growth in the area used for various non-agricultural purposes in urban areas of the district, it has been assumed here that land area put to various non-agricultural uses would have a positive annual growth of 2 per cent each year upto 2009-2010. It is to be now considered that which of the uses of land would be diverted to meet the 2 per cent growth in area of non-agricultural uses each year upto 2009-2010. It has been assumed here that current fallow, other fallow and net area sown are the three components of land, from which land would be diverted to meet the growth of 2 per cent in the area used for non-agricultural purposes. The areas of current fallow, other fallow and net area sown are proposed to be diverted to non-agricultural uses as per their proportionate shares in the land use pattern of the district. District Kanpur has a great reputation for being one of the largest districts in Uttar Pradesh. Due to unfavourable circumstances, since last two decades, such as, poor power supply and bad road condition of the district, etc., the rate of industrialization falls sharply. Considering all these facts, 2 per cent annual growth rate to various non-agricultural uses would be most practical.

On the above basis, area put to use of various non-agricultural purposes which was 31159 hectares in 2000-2001 would increase to 35597 hectares during 2009-2010, indicating a growth of 14.24 per cent during this period. The share of non-agricultural land in the reporting area of the district would also increase from 10.41 per cent in 2000-2001 to 11.89 per cent during 2009-2010. The year-wise increase in the area under non-agricultural uses of Kanpur Nagar district from 2000-2001 to 2009-2010 has been presented in Table 5.5.

Table 5.5: **Proposed Plan for Increasing in the Area of Non-Agricultural Uses in Kanpur Nagar District**

(in Hect.)

Year	Area Under Non-Agricultural Uses	Area of Non-Agricultural Uses Diverted for Tree Cover	Net Area Under Non-Agricultural Uses (2-3)	Net Area Sown to be Used for Non-Agricultural Uses	Area of Current Fallow to be used for Non-Agricultural Uses	Area of Other Fallow to be used for Non-Agricultural Uses	Total Area to be used for Non-Agricultural Uses (4 to 7)	% of Reporting Area
1	2	3	4	5	6	7	8	9
2000-01	31159	--	--	--	--	--	--	10.41
2001-02	31159	156	31003	535	55	30	31623	10.56
2002-03	31623	158	31465	543	55	31	32094	10.72
2003-04	32094	160	31934	551	56	32	32573	10.88
2004-05	32573	163	32410	559	57	32	33058	11.04
2005-06	33058	165	32893	658	58	32	33551	11.20
2006-07	33551	168	33383	576	59	33	34051	11.37
2007-08	34051	170	33881	585	60	33	34559	11.54
2008-09	34559	173	34386	594	60	34	35074	11.71
2009-10	35074	175	34899	603	61	34	35597	11.89

V.6 PLAN OF LAND AREA UNDER CULTURABLE WASTE

A large amount of culturable waste area of land is found in Kanpur-Nagar. It was more than 22000 hectares during 2000-2001. Even now, 20,517 hectares of culturable waste land is lying unutilized in the district. Keeping in view the large population of landless people in the district, it would be rationale to use culturable waste land mainly for cultivation. While planning to increase tree cover in the district, it was proposed to perform afforestation on 1.50 per cent of the area of culturable waste during each year from 2000-2001. Now question comes up that how much area of culturable waste can be used for agricultural purposes. The officials of the Department of Agriculture, Government of Uttar Pradesh, expressed their views that due to some reasons, rise in net area sown could not be compatible with the increase in population in the district of Kanpur Nagar and the state as a whole. They cited the non-use of the large area of culturable waste in the district over the years, as one of reasons for not increasing the net area sown. As far as culturable waste area of Kanpur Nagar is concerned, it is increasing in terms of percentage to total reporting area of the district since 1980 to 2001 and reached from 3.61 per cent in 1980 to 7.50 per cent in 2001. It has been decided that efforts should be made to divert around 7 per cent area of culturable waste land to net area sown during each year upto 2009-2010, keeping in view the size of the area of culturable waste in the district. On this basis, area of culturable waste would be reduced by 55 per cent upto 2009-2010 than what was in 2000-2001. There would be a successive decline in the share of the area of culturable waste in reporting area of the district during each year from 2000-2001 to 2009-2010. The percentage of the area of the culturable waste which was 7.48 in 2000-2001, would be reduced to 3.40 per cent by 2009-2010. In Table 5.6, a plan of utilization of culturable waste land in Kanpur Nagar district has been presented.

Table 5.6: Proposed Plan for the Use of Culturable Waste in Kanpur Nagar District

(in Hect.)

Year	Culturable Waste	Area of Culturable Waste Diverted to Tree Cover	Area of Culturable Waste Diverted to Net Area Sown	Remaining Culturable Waste (2-3-4)	% of Reporting Area
1	2	3	4	5	6
2000-01	22397	--	--	--	7.48
2001-02	22397	336	1544	20517	6.85
2002-03	20517	308	1415	18794	6.28
2003-04	18794	282	1296	17216	5.75
2004-05	17216	258	1187	15771	5.27
2005-06	15771	236	1087	14448	4.83
2006-07	14448	217	996	13235	4.42
2007-08	13235	199	913	12123	4.05
2008-09	12123	182	836	11105	3.71
2009-10	11105	167	766	10172	3.40

V.7 PLAN FOR THE PASTURE LAND

The area under permanent pasture has been showing a reducing trend in a fluctuating manner in the district since 1980-81 to 2000-2001. It was 41453 hectares (0.72 per cent of the reporting area of the district) in 1980-81 reduced to 3598 hectares, but increased in percentage term to the reporting area of the district and reached to 1.20 per cent. This happened due to the shifting of area from one district to another district (from Kanpur Nagar to Kanpur Dehat). The other reason of declining in area of permanent pasture has been due to encroachment for cultivation and other uses, despite the fact that there are Government Orders that the area of pasture land can not be diverted for any other uses including for agricultural purposes. It is the fact that whatever area has under pasture in the district, that is insufficient to feed the growing population of livestock as several farmers have started growing various types of fodder

crops on their cultivated area. It gives us certainty to our belief that existing area under pasture is insufficient to feed the population of livestock and any decline in this area during coming years would pose a serious problem for feeding the livestock of the district. Therefore, in the proposed land use plan of Kanpur Nagar district, any diversion of the area under the pastures is to be restricted and upto 2009-2010, there should not be any decline in the area of 3598 hectares of pasture land. It is to be ensured by the revenue officials and village panchayats.

V.8 PLAN FOR THE MISCELLANEOUS TREES

District Kanpur Nagar supposed to a most polluted district of the State due to a high number of industrial activities. A natural remedy of the pollution problem is the high concentration of tree cover. The area of miscellaneous trees indicates the area of old trees/orchards as well as new trees/orchards. The area of this land use category has experienced a sharp decline over the years. In 1980-81, area under miscellaneous trees was 9850 hectares which was reduced to 5596 hectares in the year 2000-2001. Even during the last three years since 2000-2001, area under miscellaneous trees suffered a decline. Given the small size of land area under miscellaneous trees and the importance of trees for healthy environment, meeting the needs of woods and horticulture, there seems to be no logic that whatever area has been left under the category of miscellaneous trees should be touched for other uses. Therefore, the act and government orders those prohibit the cutting of trees, are to be implemented seriously during the coming years and at least the existing area of 5596 hectares under the miscellaneous trees is to be kept untouched.

V.9 PLAN FOR CURRENT FALLOW

A big amount of land, around 20,000 hectares was under the current fallow in the year 2000-2001. It is showing an increasing trend since 1980-81 to 2000-2001 in terms of reporting area and was 6.56 per cent to the reporting area of the district. Therefore, it is required that such a big area which has been the part of the net sown area, should not be left unutilized. In the past, there has been reduction in the area of fallow land by around 3 per cent in the district. Keeping in view the size of the area of current fallow and views of the officials of Department of Agriculture, it has been decided to utilize around 5 per cent of the area of both current fallow and old fallow for cultivation. The share of each of the two fallow land proposed for utilization would be divided on the basis of proportionate share of each of the fallow land in total fallow land of the district. On this basis, the area of current fallow of around 20,000 hectares of 2000-2001 would be reduced and will reach upto 11400 hectares in the year 2009-2010. The share of current fallow which was 6.55 per cent in the year 2000-2001 in reporting area of the district would be year-wise diverted to the cultivated area and it will come down to 3.83 per cent by the year 2009-2010. Besides, it has already been planned to utilize 0.50 per cent of area of the current fallow for increasing tree cover and for non-agricultural uses in its proportionate share in Kanpur Nagar district during each year upto 2009-2010. The detailed plan of proposed utilization of current fallow of Kanpur Nagar district has been presented in Table 5.7.

Table 5.7: Proposed Plan for the Use of Current Fallow in Kanpur Nagar District

(in Hect.)

Year	Current Fallow	Area of Current Fallow Diverted for Tree Cover	Area of Current Fallow Diverted for Non-Agricultural Uses	Area of Current Fallow Diverted for Net Area Sown	Remaining Current Fallow Land {(2-3-4)-5}	% of Reporting Area
1	2	3	4	5	6	7
2000-01	19624	--	--	--	--	6.55
2001-02	19624	98	55	972	18499	6.18
2002-03	18499	92	55	914	17438	5.82
2003-04	17438	87	56	860	16435	5.49
2004-05	16435	82	57	808	15488	5.17
2005-06	15488	77	58	760	14593	4.87
2006-07	14593	73	59	714	13747	4.59
2007-08	13747	69	60	671	12947	4.32
2008-09	12947	65	60	630	12192	4.07
2009-10	12192	61	61	591	11479	3.83

V.10 PLAN FOR OTHER FALLOW LAND

The area of other fallow land which denotes the land that has not been cultivated for more than three-four years has also large in Kanpur Nagar district. In the year 2000-2001, land area under other fallow was around 11000 hectares in the district. Its percentage in reporting area of the district was around 4 per cent in 2000-2001. The available data suggested that the area of other fallow land did not demonstrate continuous decline over the years. At one point of time, there was decline in this area from previous year but at later years its area showed increasing trend. Since the area of other fallow land has been the part of the cultivated area, it has been decided to bring some of its area under cultivation during each year upto 2009-2010. As already mentioned that 5 per cent of area of both fallow land would be diverted to the cultivation during each year upto 2009-2010. The contribution of each of the two fallow

land in this 5 percentage would be as per their proportionate shares in total fallow land of the district. In this way, as shown in Table 5.8, around 330 hectares of other fallow land would be diverted for use of cultivation by the year 2009-2010. Despite it, the area of fallow land would remain around 6000 hectares in the district in 2009-2010. The percentage of other fallow land which was 3.65 in the year 2000-2001 would be reduced to 2.01 per cent in 2009-2010. Besides, diversion to the cultivated area, 1 per cent of its area has also been proposed for afforestation and in proportion to its share in total fallow land.

Table 5.8: Proposed Plan for the Use of Other Fallow in Kanpur Nagar District

(in Hect.)

Year	Other Fallow	Area of Other Fallow Diverted for Tree Cover	Area of Other Fallow Diverted for Non-Agricultural Uses	Area of Other Fallow Diverted for Net Area Sown	Remaining Other Fallow Land ((2-3-4)-5}	% of Reporting Area
1	2	3	4	5	6	7
2000-01	10938	--	--	--	--	3.65
2001-02	10938	109	30	542	10257	3.43
2002-03	10257	103	31	510	9613	3.21
2003-04	9613	96	32	479	9006	3.01
2004-05	9006	90	32	451	8433	2.82
2005-06	8433	84	32	424	7893	2.64
2006-07	7893	79	33	398	7383	2.47
2007-08	7383	74	33	374	6902	2.31
2008-09	6902	69	34	351	6448	2.16
2009-10	6448	65	34	330	6019	2.01

V.11 PLAN FOR NET AREA SOWN

A model of net area sown emerges from the proposed plan of other uses of land upto the year 2009-2010. As mentioned earlier that 0.50 per cent of the net sown area

was proposed to be used for increasing tree cover in the district and 86.33 per cent of the 2 per cent of its area was planned to be diverted for non-agricultural uses. Further, it was decided to reclaim 2 per cent of the barren land to be added in the net area sown. It was planned to bring 7 per cent of the culturable waste land under cultivation each year and 5 per cent area of both the fallows, according to their proportionate shares, was planned to be used for cultivation. The resultant net area sown showed its share of 67.13 per cent in reporting area of the district in 2009-2010 from 64.48 per cent in 2000-2001. The net area sown of the district would increase by 7929 hectares in 2009-2010 from 2000-2001. In Table 5.9, proposed plan of net area sown for the period 2000-2001 to 2009-2010 has been presented.

Table 5.9 : **Proposed Plan for the Net Area Sown in Kanpur Nagar District**

(in Ha.)

Year	Net Area Sown	Net Area Sown Diverted for Tree Cover	Net Area Sown Diverted for Non-Agricultural Uses	Barren Land Added to Net Area Sown	Current Fallow Added to Net Area Sown	Other Fallow Added to Net Area Sown	Culturable Waste Added to Net Area Sown	Total Net Area Sown (2-3-4+5+6+7+8)	Percentage of Reporting Area
1	2	3	4	5	6	7	8	9	10
2000-01	193069	--	--	--	--	--	--	--	64.48
2001-02	193069	965	535	146	972	542	1544	194773	65.04
2002-03	194773	974	543	141	914	510	1415	196236	65.54
2003-04	196236	981	551	135	860	479	1296	197474	65.95
2004-05	197474	987	559	130	808	451	1187	198504	66.29
2005-06	198504	993	568	124	760	424	1087	199338	66.57
2006-07	199338	997	576	120	714	398	996	199993	66.79
2007-08	199993	1000	585	115	671	374	913	200481	66.95
2008-09	200481	1002	594	110	630	351	836	200812	67.06
2009-10	200812	1004	603	106	591	330	766	200998	67.13

CHAPTER – VI

MODEL LAND USE PLAN OF KANPUR NAGAR DISTRICT

In the previous chapter, a plan has been prepared for the utilization of land for varying purposes in Kanpur Nagar District from 2000-2001 to 2009-2010. The plan has been prepared on three pragmatic considerations.

First is the past changes in land use pattern in each of the nine classifications of land use.

Second is the progress and plan of the concerned departments for the management of different uses of land and consideration of financial implications involved.

Third is the assessment of the situation that to what extent the past trends and achievements of the concerned departments would be agglomerated to arrive at the situation which shall be closer to the reality.

In fact, we did our best of endeavours to prepare the proposed plan of different uses of land more realistic so that it could be implemented by the concerned departments.

VI.1 FRAMEWORK OF THE PLAN

The following framework was developed to prepare the Model Land Use Plan of the Kanpur Nagar District:

Table 6.1: Framework of Model Land Use Plan of Kanpur Nagar District

Sl.No.	Land Use Category	Constituents of Proposed Land Use Plan of each category (2000-2001 to 2009-2010)
1.	Reporting Area	Constant
2.	Forest	Existing area + 0.50 per cent area of Net Area Sown + 2 per cent area of barren land + 0.50 per cent area of Non-Agricultural Uses + 1.50 per cent area of culturable waste + 0.50 per cent area of current fallow and 1 per cent area of other fallow.
3.	Barren Land	Existing area – 35 per cent rocky and ravines – 2 per cent went to Forest – 2 per cent went to Net Area Sown.
4.	Land Under Non-Agricultural Uses	Existing area – 0.50 per cent went to Forest + 2 per cent area of current, other and net area sown (Share of 2 per cent in each category, 8.78, 4.89 and 86.33 per cent)
5.	Culturable Waste	Existing area – 1.50 per cent area went to Forest – 7 per cent area diverted went to Net Area Sown
6.	Permanent Pasture	Constant
7.	Miscellaneous Trees	Constant
8.	Current Fallow	Existing area – 0.50 percent went to Forest – 8.78 per cent of share of 2 per cent went to non-agricultural uses – 64.21 per cent of share of 5 per cent of total fallow to be diverted to Net Area Sown
9.	Other Fallow	Existing area – 1.0 per cent area went to Forest – 4.89 percent share of 2 per cent went to non-agricultural uses – 35.79 per cent of share of 5 per cent of total fallow went to net area sown
10.	Net Area Sown	Existing area – 0.50 per cent went to Forest – 86.33 per cent of share of 2 per cent went to non-agricultural uses + 2 per cent from Barren Land + 7 per cent from Culturable Waste + 5 per cent of both fallows.

VI.2 MODEL LAND USE PLAN OF KANAPUR NAGAR

On the basis of above framework, area under forest which is to be referred as area under tree cover, which was 0.53 per cent in reporting are during 2000-2001 in Kanpur Nagar district, shows continuous increasing trend and it reaches to 5.60 per cent of the reporting area by 2009-2010. Though by the year 2009-2010, area under tree cover would be lower than the recommended norm of 30 per cent as envisaged in the

National Forest Policy, but further increase beyond 6 per cent of tree cover would not be possible to achieve in the district, taking into consideration all the factors involved.

The plan reveals continuous decline in the area of barren land from 2000-2001 to 2009-2010. Its percentage in reporting area of the district was 3.83 and it will come down to 3.07 per cent.

As the urbanization and industrialization are increasing, proposed area under non-agricultural uses would also increase in the district from 10.41 per cent in 2000-2001 to around 12 per cent during the year 2009-2010.

The percentage of area of culturable waste was 7.48 per cent in reporting area of the district in 2000-2001. It has been planned that would be largely converted to the cultivation and its share would be reduced to 3.40 per cent in the year 2009-2010 from 7.48 per cent in the year 2000-2001.

No change in the area of permanent pasture and miscellaneous trees has been proposed and it has been recommended that concerned departments should strive to maintain the status-quo of the existing area of both these uses of land.

The area under current fallow was substantial in the district. Its share in the reporting area was 6.55 per cent in the year 2000-2001. It has been planned to reduce the area of current fallow by 5 per cent in the year 2009-2010. The reduced area would be largely diverted to the net area sown in respective years. The similar plan was proposed in case of other fallow.

The proposed plan of utilization of eight categories of uses of land has bearing on the net area sown. The percentage of net area sown in the reporting area of Kanpur Nagar district was 64.48 per cent in 2000-2001. Due to shifting of area within eight uses

of land, net area sown would increase in successive years after 2000-2001 and its share in reporting area would increase to 67.13 per cent in 2009-2010. In the following Table 6.2, a complete proposed Model Land Use Plan of Kanpur Nagar District for the period 2001-2002 to 2009-2010 has been shown.

Table 6.2: Model Land Use Plan of Kanpur Nagar District: 2000-2001 to 2009-2010

Land Use Category	(in Hect.)									
	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010
Reporting Area	299435 (100.00)	299435 (100.00)	299435 (100.00)	299435 (100.00)	299435 (100.00)	299435 (100.00)	299435 (100.00)	299435 (100.00)	299435 (100.00)	299435 (100.00)
Forest	1573 (0.53)	3386 (1.13)	5164 (1.72)	6908 (2.30)	8620 (2.88)	10302 (3.44)	11958 (3.99)	13587 (4.54)	15190 (5.07)	16770 (5.60)
Barren Land	11481 (3.83)	11186 (3.74)	10902 (3.64)	10629 (3.55)	10367 (3.46)	10116 (3.38)	9874 (3.30)	9642 (3.22)	9420 (3.15)	9206 (3.07)
Land Under Non-Agricultural Uses	31159 (10.41)	31623 (10.56)	32094 (10.72)	32573 (10.88)	33058 (11.04)	33551 (11.20)	34051 (11.37)	34559 (11.54)	35074 (11.71)	35597 (11.89)
Culturable Waste	22397 (7.48)	20517 (6.85)	18794 (6.28)	17216 (5.75)	15771 (5.27)	14448 (4.83)	13235 (4.42)	12123 (4.05)	11105 (3.71)	10172 (3.40)
Permanent Pasture	3598 (1.20)	3598 (1.20)	3598 (1.20)	3598 (1.20)	3598 (1.20)	3598 (1.20)	3598 (1.20)	3598 (1.20)	3598 (1.20)	3598 (1.20)
Miscellaneous trees	5596 (1.87)	5596 (1.87)	5596 (1.87)	5596 (1.87)	5596 (1.87)	5596 (1.87)	5596 (1.87)	5596 (1.87)	5596 (1.87)	5596 (1.87)
Current Fallow	19624 (6.55)	18499 (6.18)	17438 (5.82)	16435 (5.49)	15488 (5.17)	14593 (4.87)	13747 (4.59)	12947 (4.32)	12192 (4.07)	11479 (3.83)
Other Fallow	10938 (3.65)	10257 (3.43)	9613 (3.21)	9006 (3.01)	8433 (2.82)	7893 (2.64)	7383 (2.47)	6902 (2.31)	6448 (2.16)	6019 (2.01)
Net Area Sown	193069 (64.48)	194773 (65.04)	196236 (65.54)	197474 (65.95)	198504 (66.29)	199338 (66.57)	199993 (66.79)	200481 (66.95)	200812 (67.06)	200998 (67.13)

Annexure: Land Use Pattern in Kanpur Nagar District

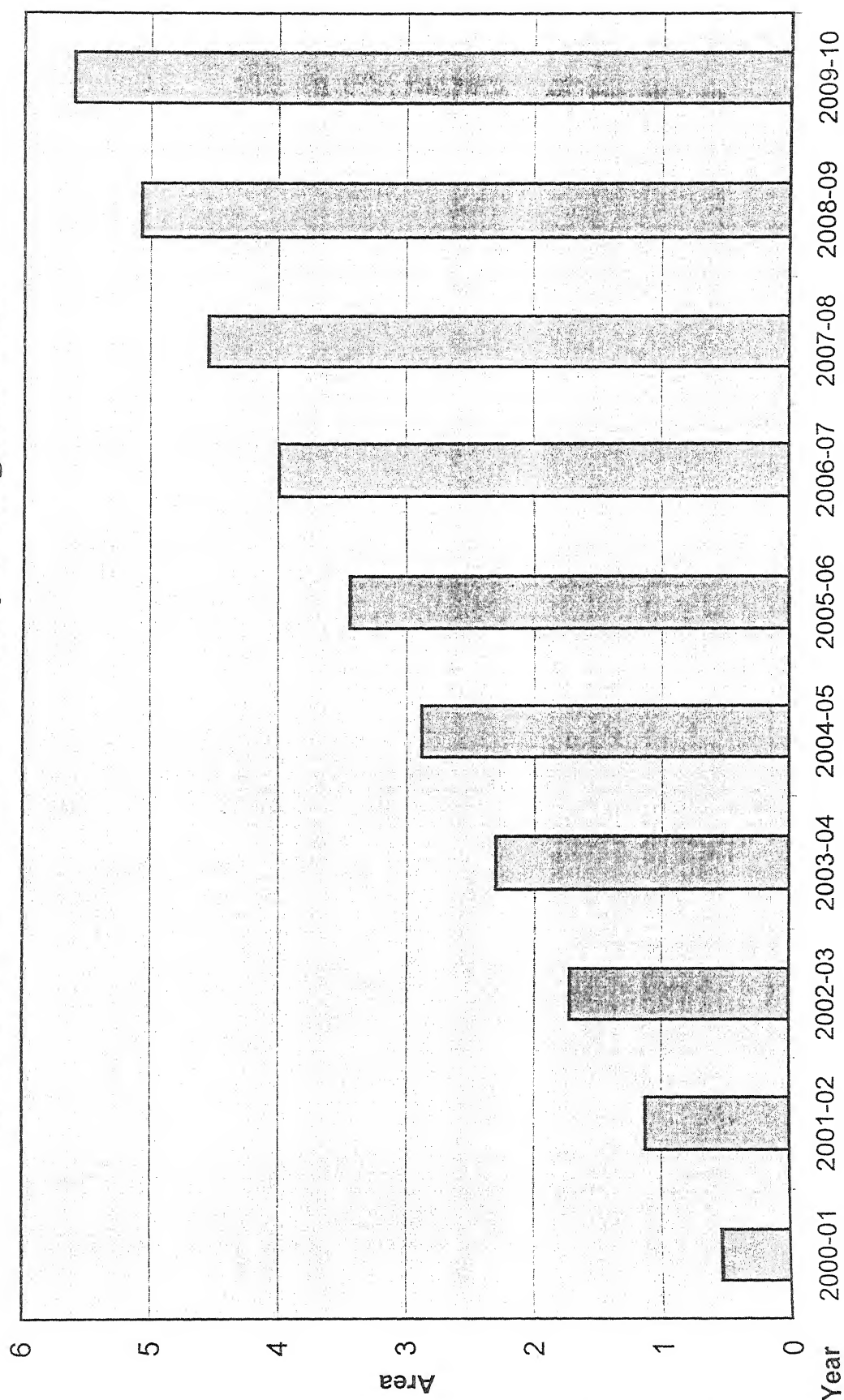
(Hect.)

Year	Land Use Categories									
	Reporting Area	Forest	Barren Land	Land Under Non-Agricultural Uses	Culturable Waste	Permanent Pasture	Miscellaneous Trees	Current Fallow	Other Fallow	Net Area Sown
1972-73	621152 (100.00)	11813 (1.90)	63943 (10.29)	45587 (7.34)	23026 (3.71)	5087 (0.82)	13985 (2.25)	17736 (2.86)	11260 (1.81)	428721 (69.02)
1974-75	622215 (100.00)	11922 (1.92)	63592 (10.22)	45577 (7.32)	21326 (3.42)	5335 (0.86)	13413 (2.16)	17721 (2.85)	12318 (1.98)	431011 (69.27)
1975-76	622689 (100.00)	11999 (1.93)	61630 (9.90)	48528 (7.79)	21557 (3.46)	5503 (0.88)	13088 (2.10)	18245 (2.93)	12482 (2.01)	429657 (69.00)
1976-77	621571 (100.00)	11999 (1.93)	60195 (9.69)	45547 (7.33)	20713 (3.33)	5314 (0.85)	12459 (2.01)	20904 (3.36)	12267 (1.97)	432173 (69.53)
1977-78	620325 (100.00)	11982 (1.93)	58695 (9.46)	47265 (7.62)	20713 (3.34)	4965 (0.80)	11318 (1.82)	20893 (3.37)	14190 (2.29)	430304 (69.37)
1978-79	620298 (100.00)	11971 (1.93)	57097 (9.21)	47414 (7.64)	21031 (3.39)	4704 (0.76)	10591 (1.71)	20252 (3.26)	16006 (2.58)	431232 (69.52)
1979-80	620269 (100.00)	11971 (1.93)	55914 (9.02)	47780 (7.70)	16428 (2.65)	4642 (0.75)	13365 (2.15)	26996 (4.35)	17166 (2.77)	426007 (68.68)
1980-81	619523 (100.00)	11971 (1.93)	54966 (8.87)	49072 (7.93)	22384 (3.61)	41453 (0.72)	9850 (1.59)	18778 (3.03)	21790 (3.52)	426259 (68.80)
1981-82	618366 (100.00)	11862 (1.92)	53038 (8.58)	50257 (8.13)	21106 (3.41)	4493 (0.73)	9257 (1.50)	24759 (4.00)	17770 (2.87)	425824 (68.86)
1982-83	619111 (100.00)	11862 (1.92)	52752 (8.52)	50766 (8.20)	19573 (3.16)	4437 (0.72)	9825 (1.59)	26718 (4.31)	18771 (3.03)	424407 (68.55)
1983-84	618642 (100.00)	11862 (1.92)	50832 (8.22)	53840 (8.70)	17576 (2.84)	4479 (0.72)	9682 (1.57)	26558 (4.29)	20496 (3.31)	423317 (68.43)
1984-85	618484 (100.00)	11785 (1.91)	53394 (8.63)	50508 (8.17)	18205 (2.94)	4387 (0.71)	9800 (1.58)	25709 (4.15)	23352 (3.78)	421344 (68.13)
1985-86	618349 (100.00)	11150 (1.80)	53944 (8.72)	50905 (8.24)	17638 (2.85)	4545 (0.74)	9603 (1.55)	25370 (4.10)	22854 (3.70)	422340 (68.30)
1986-87	617581 (100.00)	11862 (1.92)	51578 (8.35)	51239 (8.30)	18252 (2.95)	4358 (0.71)	9170 (1.48)	25908 (4.20)	23820 (3.86)	421394 (68.23)
1987-88	617581 (100.00)	11337 (1.84)	47332 (7.66)	52346 (8.48)	19324 (3.13)	4112 (0.67)	8734 (1.41)	30576 (4.95)	26017 (4.21)	417803 (67.65)

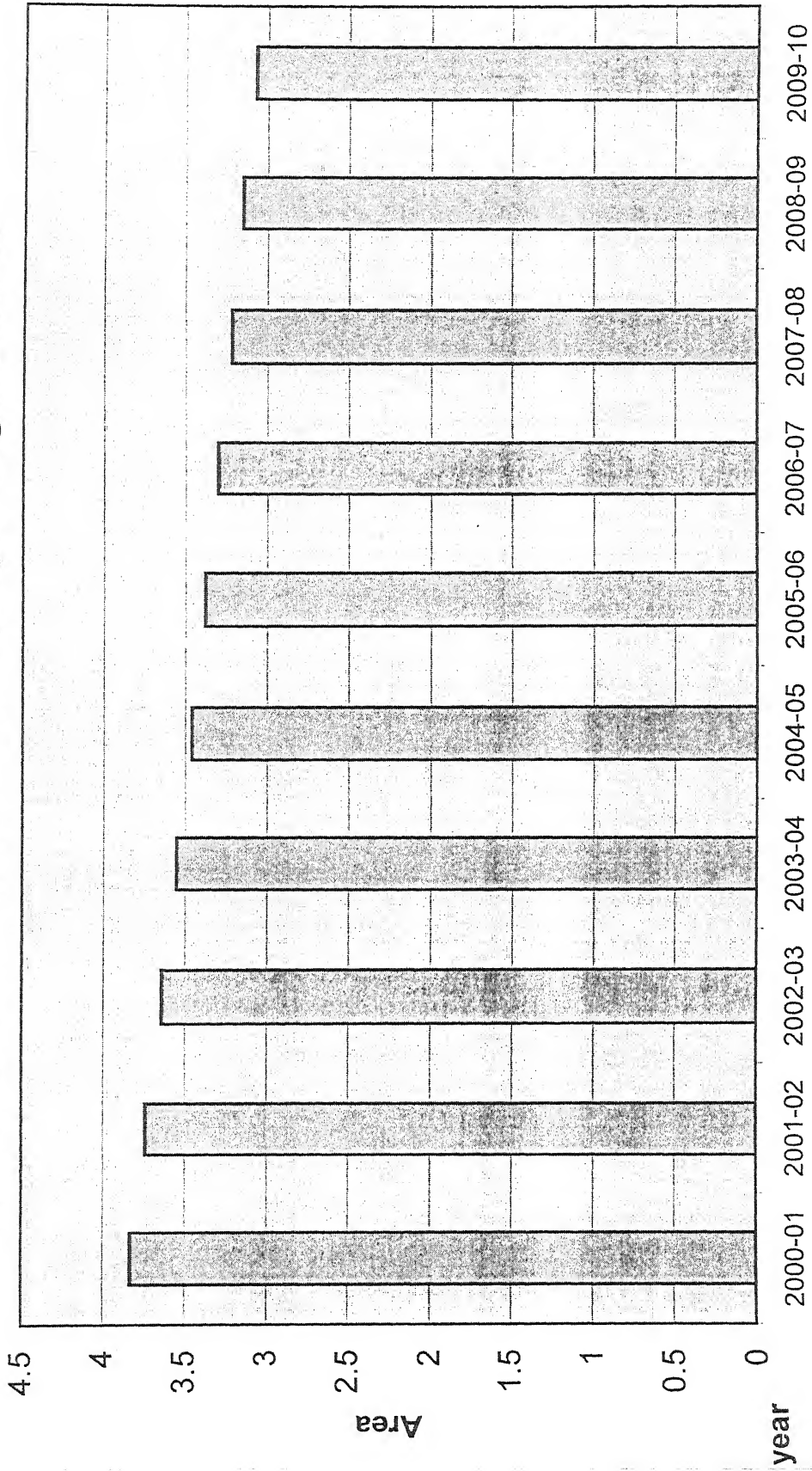
Annexure (contd.....)

Year	Land Use Categories									
	Reporting Area	Forest	Barren Land	Land Under Non-Agricultural Uses	Culturable Waste	Permanent Pasture	Miscellaneous Trees	Current Fallow	Other Fallow	Net Area Sown
1988-89	617249 (100.00)	11337 (1.84)	49743 (8.06)	52346 (8.48)	19098 (3.09)	4058 (0.66)	8815 (1.43)	26603 (4.31)	24585 (3.98)	420664 (68.15)
1989-90	617250 (100.00)	11646 (1.89)	49423 (8.01)	52924 (8.57)	19524 (3.16)	4073 (0.66)	8645 (1.40)	26878 (4.35)	26280 (4.26)	417857 (67.70)
1990-91	108154 (100.00)	4553 (4.21)	6001 (5.55)	15237 (14.09)	5764 (5.33)	3201 (2.96)	2179 (2.01)	5859 (5.42)	6191 (5.72)	59169 (54.71)
1991-92	104296 (100.00)	1620 (1.55)	6064 (5.81)	15249 (14.62)	5548 (5.32)	3181 (3.06)	2169 (2.08)	5554 (5.32)	6165 (5.91)	58746 (56.33)
1992-93	104749 (100.00)	1620 (1.55)	6048 (5.77)	14814 (14.14)	5619 (5.36)	3138 (2.99)	2403 (2.29)	5174 (4.94)	6828 (6.53)	59105 (56.43)
1993-94	104328 (100.00)	1620 (1.55)	5385 (5.16)	15021 (14.40)	5385 (5.16)	3233 (3.10)	1804 (1.73)	5084 (4.87)	7012 (6.72)	59784 (57.31)
1994-95	104328 (100.00)	1620 (1.55)	6475 (6.21)	15532 (14.89)	5228 (5.01)	3233 (3.10)	1789 (1.72)	4387 (4.20)	6729 (6.45)	59335 (56.87)
1995-96	104328 (100.00)	1620 (1.55)	7238 (6.94)	15532 (14.89)	5528 (5.30)	4233 (4.06)	1786 (1.71)	4052 (3.86)	7341 (7.04)	56998 (54.63)
1996-97	30017 (100.00)	4501 (1.50)	11546 (3.85)	31157 (10.38)	22374 (7.45)	2609 (0.87)	3265 (1.09)	11527 (3.84)	18507 (6.17)	194631 (64.85)
1997-98	299434 (100.00)	1573 (0.53)	10579 (3.53)	31157 (10.40)	22404 (7.48)	3598 (1.20)	5480 (1.83)	21801 (7.28)	9132 (3.06)	193710 (64.69)
1998-99	299435 (100.00)	1573 (0.52)	11499 (3.84)	31159 (10.41)	22397 (7.48)	3598 (1.20)	5596 (1.87)	19145 (6.39)	10723 (3.58)	193745 (64.70)
1999-2000	299435 (100.00)	1573 (0.53)	11479 (3.83)	31159 (10.41)	22397 (7.48)	3598 (1.20)	5596 (1.87)	19495 (6.51)	10798 (3.60)	193340 (64.57)
2000-01	299435 (100.00)	1573 (0.53)	11499 (3.84)	31159 (10.41)	22397 (7.48)	3598 (1.20)	5596 (1.87)	19624 (6.55)	10938 (3.65)	193069 (64.48)

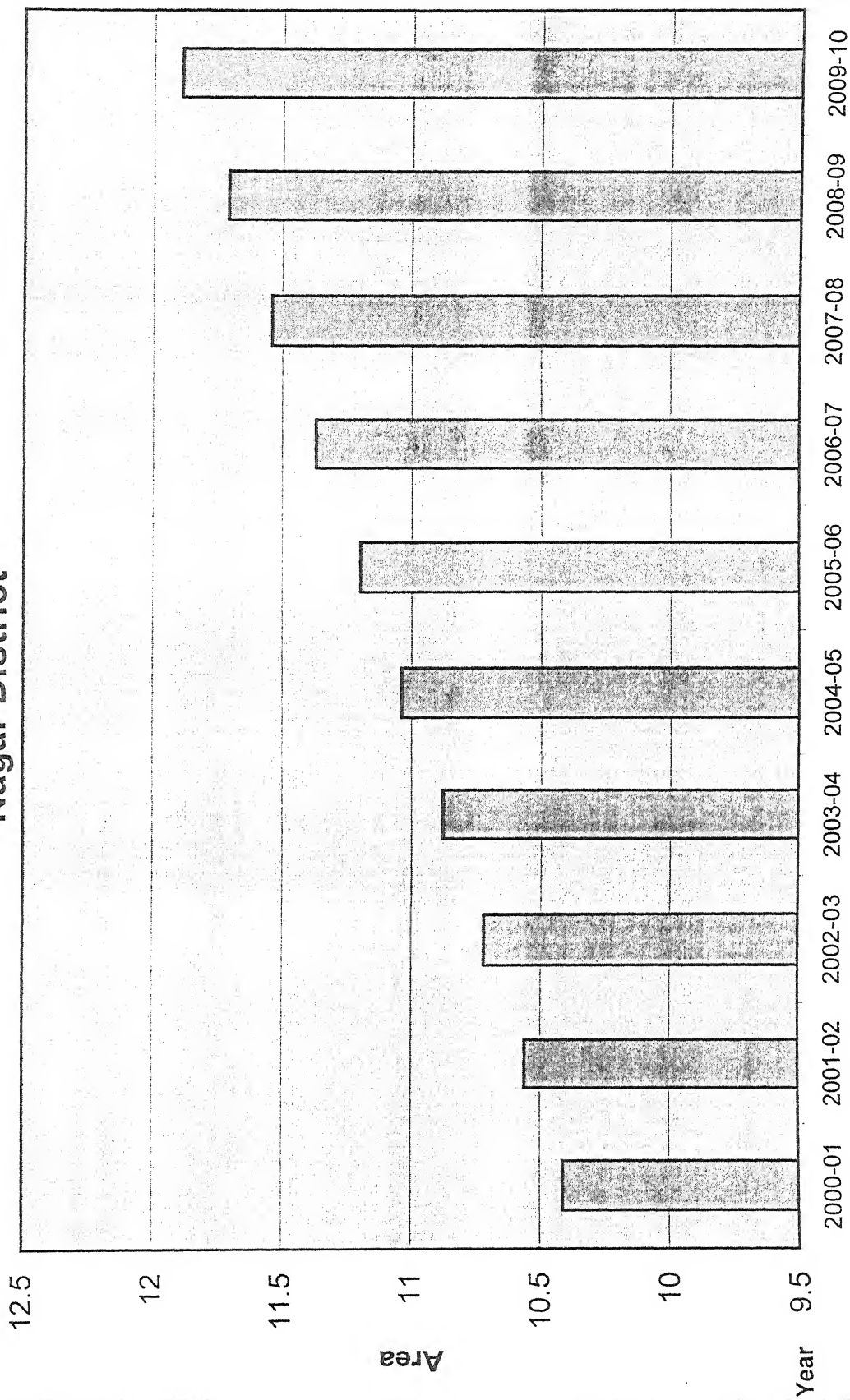
Land Use Plan of Forest -Kanpur-Nagar District



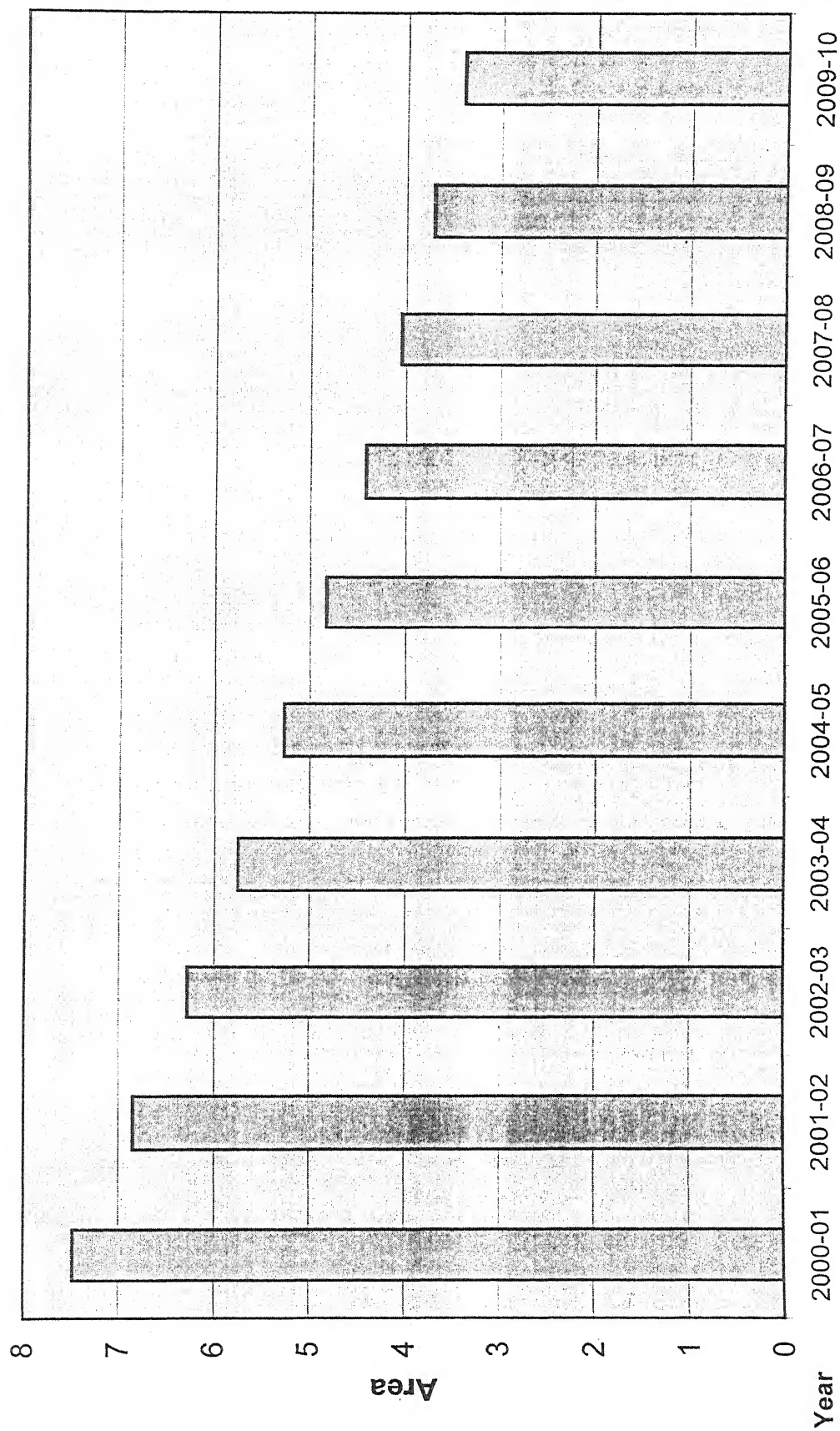
Land Use Plan of Barren Land-Kanpur-Nagar District



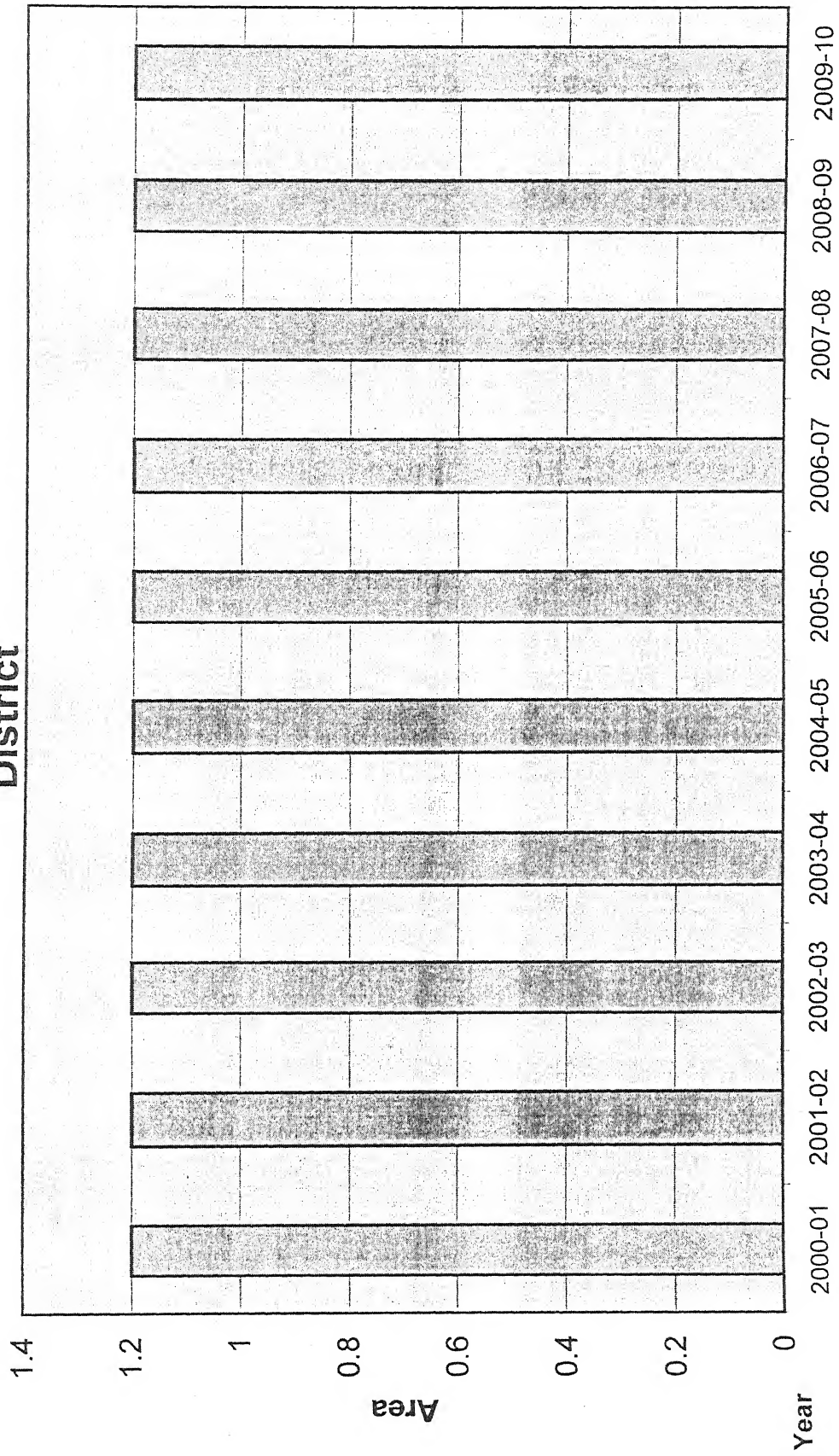
Land Use Plan of Land Under Non-Agricultural Uses-Kanpur-Nagar District



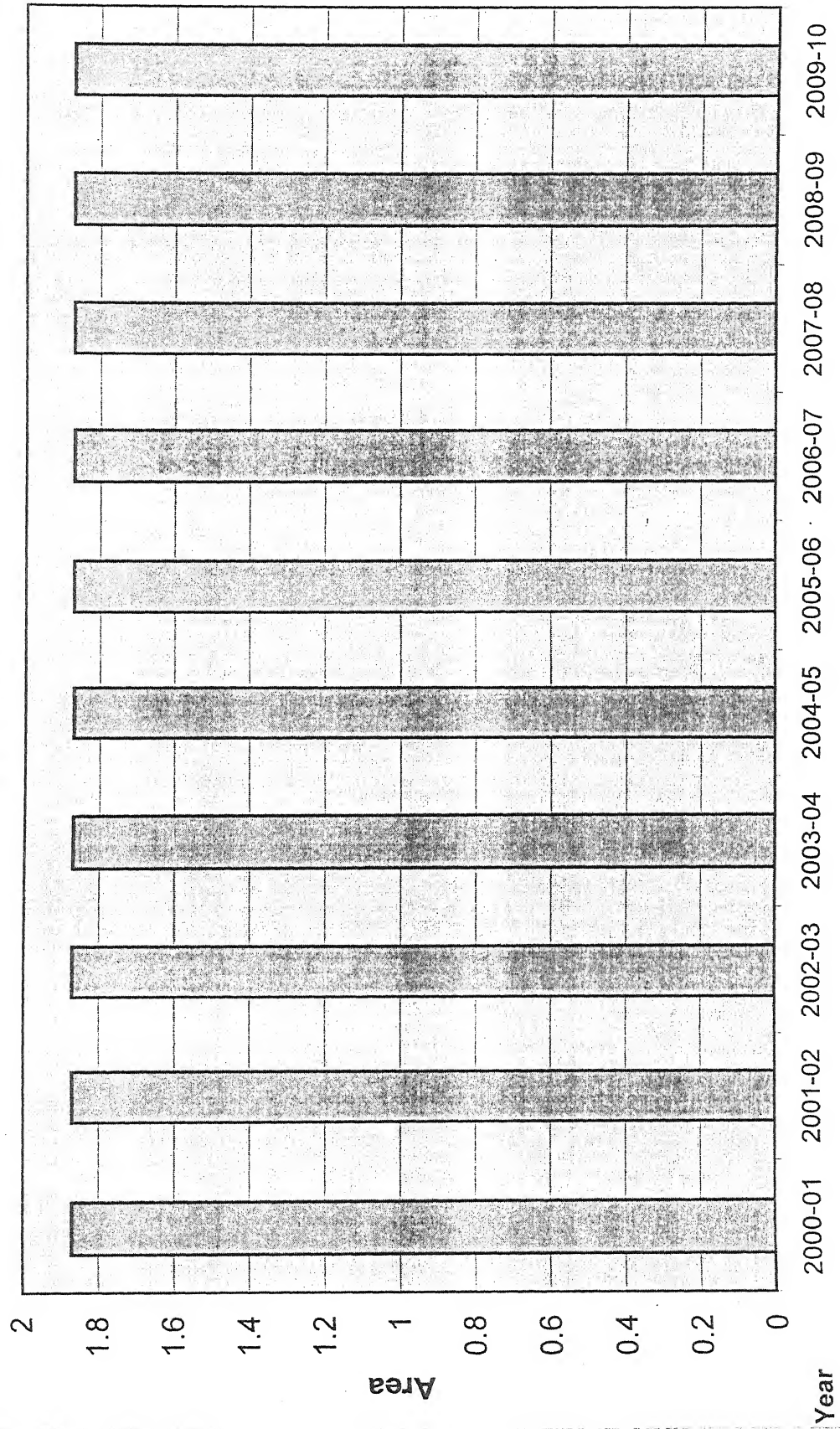
Land Use Plan of Culturable Waste-Kanpur-Nagar District



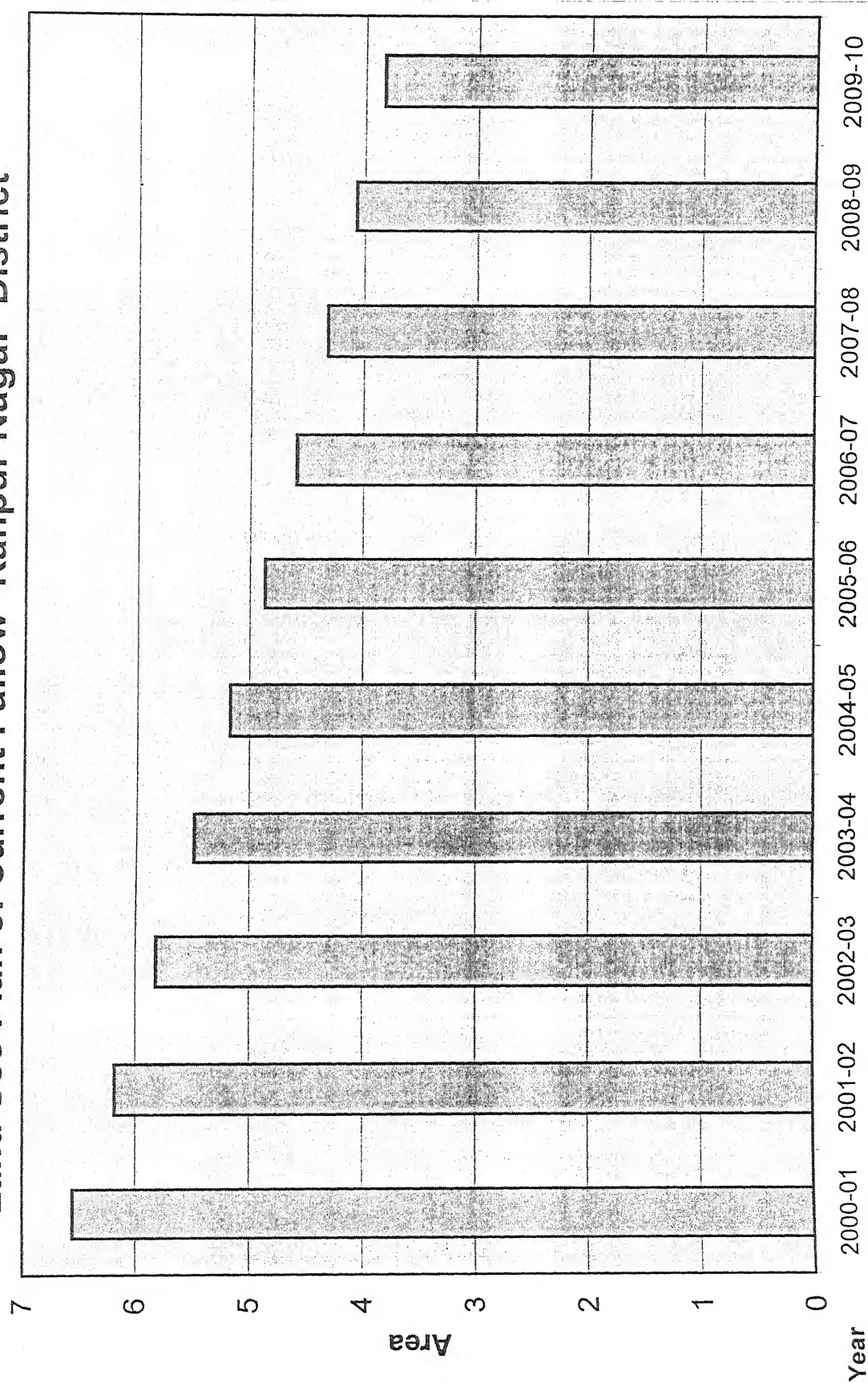
Land Use Plan of Permanent Pasture-Kanpur-Nagar District



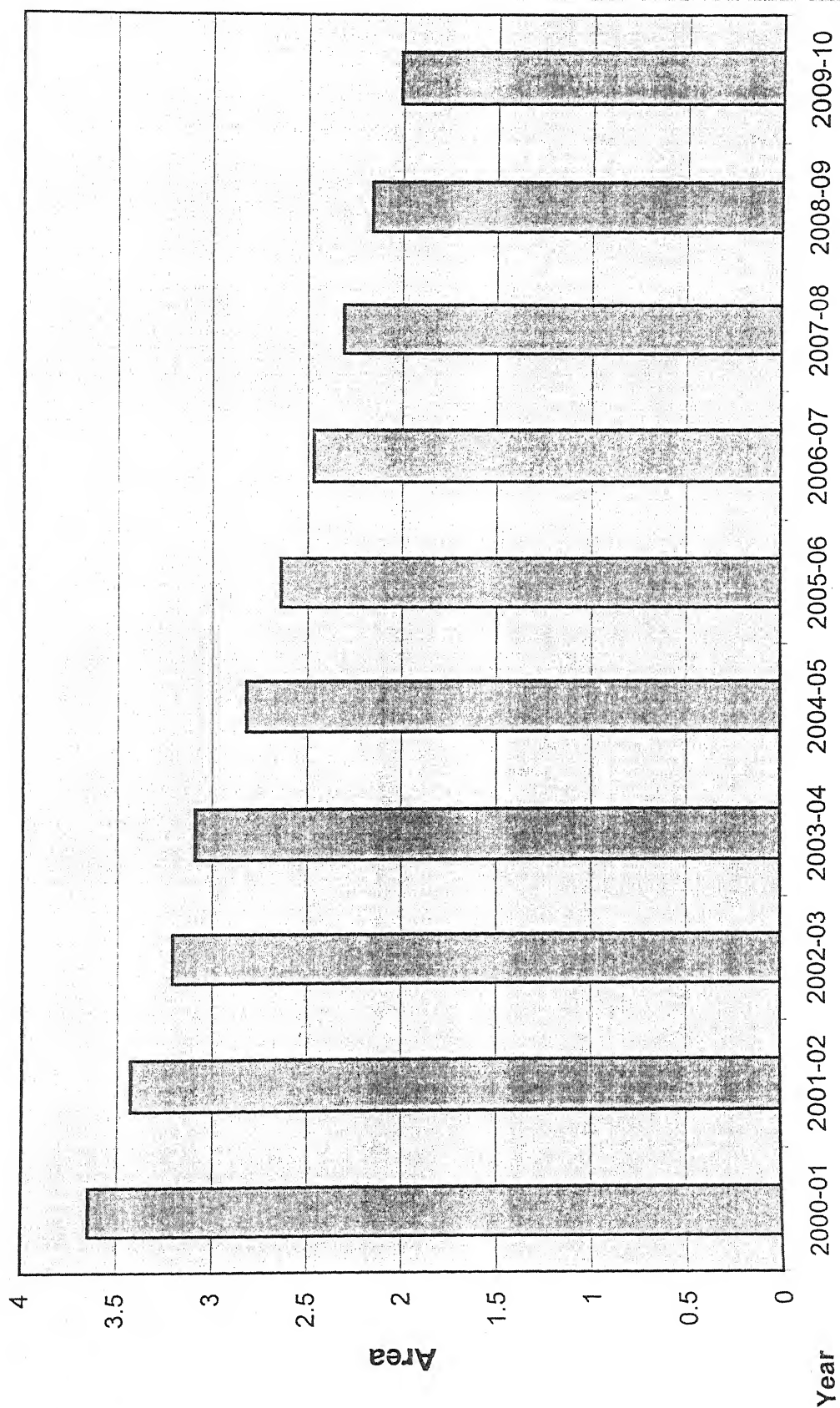
Land Use Plan of Miscellaneous Trees-Kanpur-Nagar District



Land Use Plan of Current Fallow -Kanpur-Nagar District



Land Use Plan Other Fallow- Kanpur-Nagar District



Land Use Plan of Net Area Sown-Kanpur-Nagar District

